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ABSTRACT

This report depicts the status of telecommunications network development and usage by K-12 educational institutions in April and May of 1996, as described by the heads of educational technology initiatives in each of the 50 states and the Commonwealth of Puerto Rico. These data are reproduced in this report as 51 "State Profiles." Factors related to progress in network infrastructure development and usage in K-12 schools were identified using the State Networking Report Survey questionnaire. The following themes emerged and are detailed in the second section of the report: progress in accessing and using telecommunications networks at state and district levels; the question of equity in network access by urban and rural school districts; the role of state-level technology planning for K-12 Networks; how states are funding networks for K-12 education; the collaborative role state government plays in K-12 network development; private sector partnerships that support state K-12 networks; and how educators get training in network usage. Highlights from a trend analysis written for policymakers appear at the end of this section under guidelines for future action. The individual state profiles typically contain data and survey comments that address each of the aforementioned themes. Appendices include the State Networking Report Survey Trend Analysis; a brief discussion on network connectivity in urban and rural K-12 schools and school districts; key state contacts in K-12 networking; and the survey questionnaire. (AEF)

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The State Networking Report

Progress, Policies, and Partnerships Bring **Internet Connectivity** *to K-12 Schools*

Spring 1997

Southwest Educational Development Laboratory

Texas Education Network

IR018418

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PREFACE

Since the original *State Networking Report* was published in 1995, Internet-based technology has been increasingly recognized as a potentially valuable tool for educating children. As a result, schools have been impelled to network their campuses at a rapid pace.

But ubiquitous, equitable access remains elusive. As you examine this report, you will clearly see that universal access to Internet technologies is a dream deferred in far too many schools. This situation is personified by Ricky Frank, a technologically adept student who has created and posted impressive resources on the World Wide Web. Yet Ricky is unable to share them with students at his old high school in rural East Texas—because his alma mater is not yet connected to the Internet.

Ricky's story is all too common. For this reason, policymakers must make it their business to ensure that all children and teachers in all schools have access to network technologies.

In addition, it becomes more apparent every day that, in order to fulfill the rich promise of these new tools for education, our current focus must gradually shift from ensuring network access to ensuring effective integration of Internet-based technology into K–12 curriculum. Many innovative teachers have begun to use the Internet as an educational tool. Their initiative has played a groundbreaking role in our nascent understanding of how to integrate Internet technology into the classroom. Building on their pioneering work and the future work of others, new corps of teachers will eventually make the Internet a natural part of the palette of tools they use to educate children.

The direction of leadership needs to change. While technology experts have illuminated the possibilities of the telecommunications networks, educational reformers must move from the shadows and assume a more pronounced leadership role so we all can provide equitable access and assure the integration of Internet-based technologies in the classroom. Decisionmakers must craft and adopt policies that spotlight educators' efforts toward these ends.

This report has served and, I hope, will continue to serve as an accurate reflection of the progress that has been made toward providing the technological infrastructure necessary to enrich our children's educations. I believe it has had the additional value of encouraging state-level decisionmakers to search for ways to work together on the common issues. I am heartened by the significant progress that has been made, and I hope that you feel challenged—as I do—to vigorously undertake the work that remains ahead of us.

Connie Stout
Director, Texas Education Network
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March 1997

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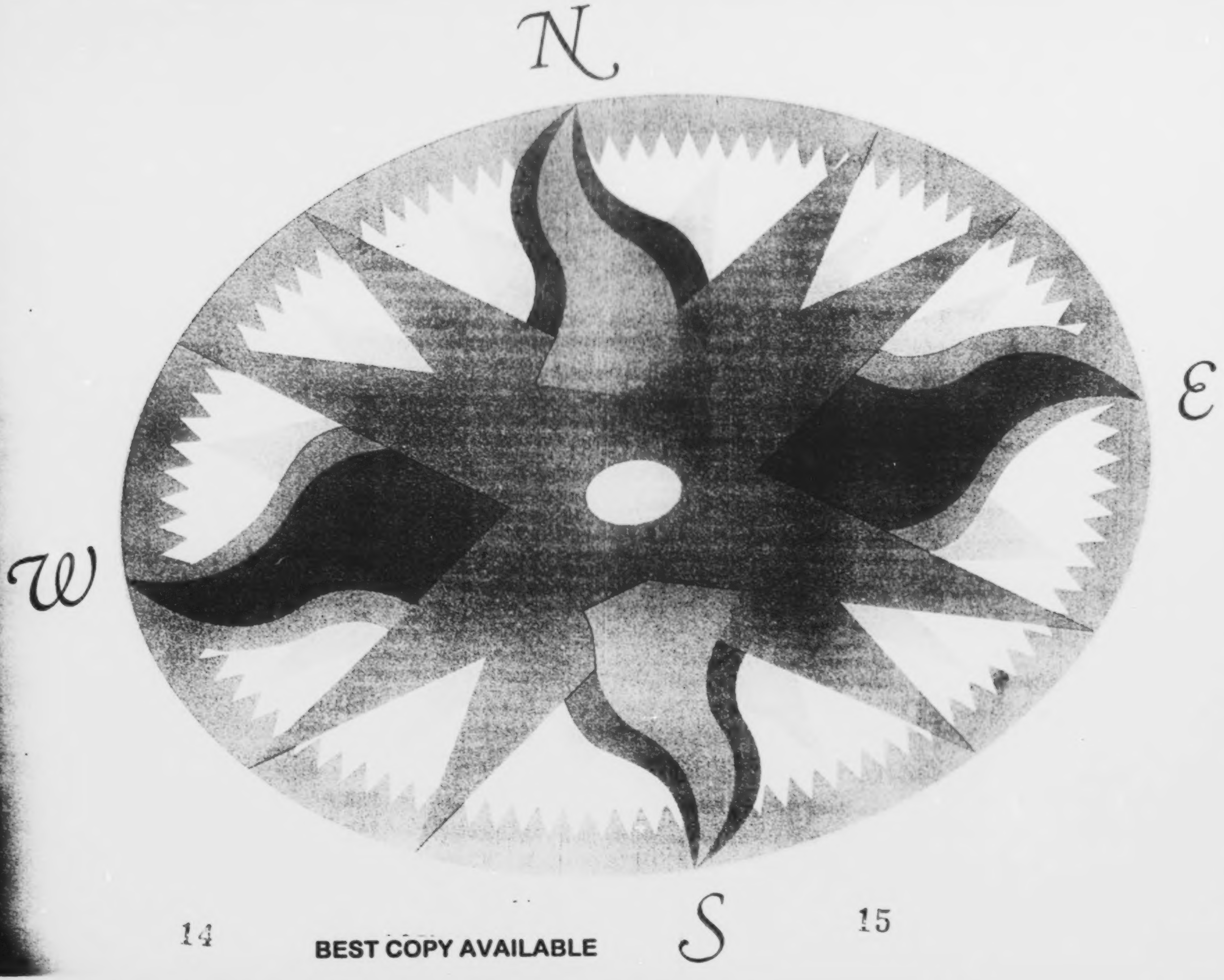

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I. Networks and K-12 Schools

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1996, the Year of the Internet

Internet usage has exploded in the two years since the Southwest Educational Development Laboratory (SEDL) and the Texas Education Network (TENET) published *Networks for Goals 2000 Reform: Bringing the Internet to K-12 Schools*. This status report detailed the development and usage of telecommunications networks serving primary and secondary public schools.

Internet connectivity has spread beyond the elite worlds of higher education and science laboratories to become a fixture in many American businesses and homes. New technologies—including the World Wide Web—enabled individuals, businesses, government, and institutions to post, access, and manipulate vast libraries of digitized information on the Internet. E-mail addresses began proliferating on business cards; news items about Internet usage and Web sites routinely appeared in the media. State education agencies and public schools rushed to provide telecommunications network services to educators and students.

A mere handful of schools could boast that they provided Internet connectivity to their teachers and students in 1995, when SEDL published *Networks for Goals 2000 Reform*. Since then, the numbers of schools with Internet connectivity have multiplied at a dizzying pace. By the end of 1996, Web66, claiming status as the "Internet's oldest and most comprehensive list of school Web sites," reported registrations for more than 3,500 American schools.[1] And in February 1997, the National Center for Educational Statistics announced that 65 percent of American schools had obtained Internet connectivity by the previous fall. "This represented a gain of 15 percentage points in each of the last two consecutive years," the report said.[2]

Several events in 1996 helped pave the way for this achievement. In his State of the Union Address that year, President Bill Clinton issued a call to connect every classroom in America to the Internet by the year 2000. On February 8, the 104th Congress signed into law the *Telecommunications Act of 1996*, which included universal service provisions that guarantee discounts in telecommunications services for public primary and secondary schools and libraries. In a blur of publicity, California staged the first NetDay on March 9, 1996, where private citizens joined educators in a push to wire every public school building in the state for Internet connectivity. Observing the relative success of this program, in autumn many other states staged NetDays of their own to mixed public response.

The White House boosted this trend by issuing the President's Technology Literacy Challenge on February 15, 1996, and President Bill Clinton made linking every K-12 school to the Internet a major theme of his re-election campaign. He reminded Americans of his commitment to this policy in his 1997 State of the Union Address:

> My number one priority for the next four years is to ensure that all Americans have the best education in the world....We must bring the power of the Information Age into all our schools. Last year, I challenged America to connect every classroom and library to the Internet by the year 2000, so that, for the first time in our history, children in the most isolated rural towns, the most comfortable suburbs, the poorest inner city schools, will have the same access to the same universe of knowledge....We've only begun to spread the benefits of a technology revolution that should become the modern birthright of every citizen.[3]

Officials in state government have participated in the technology revolution by funding and fine-tuning telecommunications initiatives for their citizenry—and for K-12 public education. By spring 1996 government in most states had deployed telecommunications networks of their own, and almost every state had undertaken or carried on the difficult and costly task of delivering network connectivity directly to their schools. And while progress was made throughout 1996, much more work remains to be done.

It is the states' progress in developing their K-12 networks and networking strategies favored by state policymakers that *The State Networking Report* examines.

The Benefits of Telecommunications Networks for Education

With the rush to develop public telecommunications networks, some have questioned the value of providing network connectivity to schools. They object to such programs, citing the expense of developing a national information infrastructure, updating school buildings for network connectivity, and equipping classrooms with Internet-ready computers. Others counsel delay since society is in the midst of a transition and has yet to determine how best to exploit emerging telecommunications technologies.

Yet it is the transitional nature of society and telecomputing that prompts telecommunications advocates to support public school networks. Sen. Olympia Snowe (R-ME) coauthored the Snowe-Rockefeller-Exon-Kerrey "universal service" amendment to the *Telecommunications Act of 1996*, "to provide primary and secondary schools and libraries access to educational telecommunications services at affordable rates." Snowe and her colleagues argued,

> We recognized that we had an opportunity to do more than simply open the telecommunications markets to competition—we also had an opportunity to prepare our children and grandchildren for the future. One of the most important aspects of the information superhighway is its potential to transmit information across traditional boundaries of time and space. This has dramatically changed the way American schoolchildren learn, and its influence will only increase in the future....The skills they can acquire through technologically enhanced learning will help them secure meaningful employment and become informed citizens in a democratic society.[4]

Federal Communications Commission Chairman Reed E. Hundt championed the universal service provisions as part of his strategy of deregulating telecommunications to encourage the growth of the American economy. He says this transitional period gives policymakers and educators an unprecedented opportunity to "transform schools." By auctioning television channels, the FCC has "been able to find the money to rebuild the schools...and in the rebuilding we would put modern communications networks right inside them....The FCC needs to develop and maintain a vision of how the communications revolution is supposed to help everyone in this country, not just the privileged."[5]

Networks Support Student Learning

How can telecommunications networks strengthen K-12 education? A growing body of research suggests that network connectivity and usage aid student learning. Among the most promising research is the 1996 study by the Center for Applied Special Technology and Scholastic Inc.[6] Conducted in seven cities and involving 500 fourth and sixth grade students and teachers in 28 elementary and middle schools, the study evaluated the effectiveness of on-line curriculum by measuring how much students with network access learned in comparison to those whose classes did not integrate telecomputing. Compared to their nonwired peers, students using networks scored significantly higher in communications and information usage skills. They were

> more able to take advantage of curriculum supports and... resources available to them. Their final projects were rated as stronger overall [by third party evaluators], and stronger in most of the specific competencies measured [and they] scored significantly higher [on] measurements of information management, communication, and presentation of ideas. This offers evidence that using...the Internet can help students become independent, critical thinkers, able to find information, organize and evaluate it, and then effectively express their new knowledge and ideas in compelling ways.[7]

Other studies have shown that the interactive capabilities of networked computers can increase some students' participation in class. One study of college-level foreign-language classes supplemented with on-line discussions found that otherwise reticent students asked more questions of their fellow students and the teacher and "felt freer to suggest a new topic, follow up on someone else's idea, or request more information."[8] This finding was echoed in a summary of Sivin-Kachala and Bialo's study that appeared in the 1996 *Report on the Effectiveness of Technology in Schools.* Not only did usage of telecommunications networks "increase student-student and student-teacher interaction," but it also "increased student-teacher interaction with lower performing students, and did not decrease the traditional forms of communication. Many students who seldom participate in face-to-face class discussions became more active participants on-line."[9]

Spaulding and Lake (1992) also found evidence suggesting that network connectivity and usage can improve students' attitudes toward learning. When American students in New York State used network communications to swap information with Russian students in the Moscow city schools, their teachers discovered that students "spent significantly more time" discussing current events and reading up on international relations outside class than their peers who lacked network access.[10]

Finally, network connectivity puts students in touch with the vast network of networks known as the Internet or the Global Information Infrastructure (GII). Once they gain connectivity, students can not only take electronic field trips to the Louvre or NASA headquarters or the Library of Congress, they can also access millions of pages of digitized graphics and texts stored in databases or World Wide Web and Gopher sites. Through e-mail, students can confer with peers and experts in ambitious, meaningful hands-on learning projects; in fact, student contributions to studies of global weather patterns, the environmental sciences, marine biology, and the migration patterns of Monarch butterflies are well documented. Given a sufficiently powerful Internet connection, students can participate in video conferences with children and youth from the other side of the globe, view film clips of historic events, listen to excerpts of significant speeches or great music, or attend classes taught through distance learning technologies by master teachers and authorities in academic disciplines.

Networks Support Teachers and Good Teaching

Network connectivity also helps teachers, who can download on-line lesson plans, integrate Internet resources into assignments, contact other educators through electronic mail lists and newsgroups, track new developments in their disciplines by consulting experts via e-mail, and discover in databases innovative instructional methods from fellow educators.

Several studies have collected testimonials from wired educators who have integrated technology as part of broader school reforms. Honey and Henríquez (1996) detail the strides made in a school technology pilot project at schools in Union City, New Jersey.

Listed among New Jersey's special needs schools in 1989, Union City schools leaped forward to new effectiveness through an ongoing improvement program that combined curriculum reform, school restructuring, and technology usage. Honey and Henríquez report that, midway through the pilot project, Union City teachers noticed that students in the technology project outperformed their counterparts who lacked network tools—in reading, math, and writing. E-mail has been especially valuable to the wired teachers. They logged on after hours to swap information about Web sites, discuss daily events, and "talk through" problems. They went on-line to "build bridges and break down walls" that separate parents, educators, and students. Two Union City principals also built bridges through e-mail—and enjoyed an unexpected benefit: after inviting students to contact them on-line, the principals developed friendships they otherwise would not have formed.[11]

Networks Support Effective School Administrators

Creating new channels of contact for students and parents is only one of several ways school administrators benefit from network access. Since every state education agency has mounted a Web site, school principals and district superintendents can stay current on the state initiatives that influence the operations and financing of the K-12 public schools they lead. Many foundations and government agencies post grant announcements on the Internet, expanding funding opportunities for administrators. Some school superintendents turn to their networks for student tracking and record keeping.

When implemented with the education discounts and subsidies mandated by the *Telecommunications Act of 1996*, connectivity will enable administrators in property-tax-poor school districts to provide educational resources they could not otherwise afford; they will be able to expand learning resources far beyond the traditional classrooms and curriculum

Introducing K-12 Telecommunications Networks and Network Connectivity

What is a network?

A network is a communications circuit that carries information that can be accessed and shared by groups of two or more computers. Networks allow individuals using computers and other communications devices to share information such as data, graphics, video, sound, and computer programs, regardless of their geographical location. This information is encoded as electrical signals, light, or radio waves to travel the network and be downloaded or used on individual computers and communications devices. Network circuits are physically composed of copper cables or fiber optic cables; the ether serves as the "circuit" for microwaves, radio waves, and satellite transmissions.

What kinds of networks are there?

Local Area Networks, or LANs—are networks of very limited geographical size. In a school, a LAN typically links computers located in a computer lab or placed in different classrooms and offices. The term usually refers to networks that serve a single building or a small cluster of buildings, such as those found on school campuses.

Wide Area Networks or WANs—are networks that serve a larger geographical area; they often link LANs together. A WAN can link a number of the LANs within a single school district or those of all the school districts within one or several counties. When a WAN is used to aggregate a group of smaller networks in a sizable geographical area, such as an entire state or a multistate region, it is sometimes called a **backbone network.** The statewide K-12 telecommunications networks discussed in this report and in the State Profiles are backbone networks or WANs.

The Internet—is a network of networks linking millions of computers, LANs, and WANs as well as other communications devices such as satellites. As the Internet has grown and new communications technologies have increased its functionality, some people began to call the Internet the **National Information Infrastructure, or the NII,** invoking to its coast-to-coast reach, its burgeoning communications capabilities including e-mail, teleconferencing, video transfer, and information retrieval, and usually, the actual information carried by the network. The **Global Information Infrastructure, or the GII,** refers to the telecommunications networks that encircle the planet carrying information. Most mentions of the NII and the GII allude to the networks themselves and the way networks are used in shared, widely distributed environments, along with the people who create information carried by the networks and those who use that information.[12]

What is network connectivity?

Network connectivity is the means by which individual computers access a communications network of any size.

On networks, information is carried over electronic physical connections or, in the case of wireless connections, through radio waves. Information is passed over the network from a sending user (a sender) to one or more recipients (a receiver); with interactive connectivity, users are both senders and receivers.

The rate or speed with which information is carried over the network is the **bandwidth,** and the higher the bandwidth, the faster the information travels.

The least expensive and probably the most prevalent way computers connect to a network is through a standard **dial-up network connection.** A dial-up connection is established when the user of one computer relies on a modem and a standard phone line to connect to a network or to other computers. Since dial-up connections of this type often have comparatively low bandwidth, they transmit data at relatively slow rates, and their utility is limited. The modem/phone line method of connectivity has a second disadvantage: users cannot place or receive telephone calls on that phone line at the same time they are using the line to connect their computer to a network. School districts and other users can establish Integrated Services Digital Network, or ISDN, dial-up connections to either ease or eliminate the problems inherent in standard dial-up connections. But ISDN connectivity typically costs much more than a standard phone line; it also is currently unavailable in many areas. Despite these drawbacks, dial-up connectivity is often the least expensive and easiest network connectivity to set up and launch.

A **dedicated network connection** is a connection made through a medium—typically a telephone line or a group of telephone lines—that is devoted or dedicated exclusively to the task of sending information from one group or network of computers to another. Unlike a dial-up connection, a dedicated connection is established and remains fixed between two points—say, between a high school and an Internet service provider (ISP).

The bandwidth of dedicated connections can vary widely, but it is almost always higher and faster than the bandwidth of a dial-up connection. This increased bandwidth significantly increases the utility of a dedicated connection. A dedicated, high-bandwidth connection, for example, is mandatory to connect a large network of many computers at one campus to another network of computers at the district's administration building or to the campus's Internet service provider.

Dedicated connectivity is more expensive to implement than dial-up connectivity because it requires a much more sophisticated and costly infrastructure than the commonly used forms of dial-up connectivity. Dedicated connectivity also requires a greater depth of technical expertise to set up and maintain.

Moreover, users of a dedicated network connection must live with a trade-off: they sacrifice flexibility to get heightened capabilities. Because a dedicated connection is fixed between two points, users don't have the ability to directly connect to different networks, as they probably can with a dial-up connection; dedicated connections allow users to connect initially only to the network with which they have the dedicated connection. If the network entry point is an Internet gateway—as many are—this drawback is somewhat mitigated.

Nonetheless, the much higher bandwidth and heightened capabilities of a dedicated network connection make it, in many cases, a more desirable form of network connectivity than a dial-up connection. Compare a school equipped with a dial-up connection and a school equipped with a dedicated connection. At the dial-up-connection school, a teacher can use the school's connection to dial up several different Internet service providers—but she can connect to the ISPs only one at a time, one after the other. At the school equipped with high-capability dedicated connectivity, several teachers and an entire classroom of students can use the dedicated connection to simultaneously access the Internet through the ISP with which the school has a dedicated connection.

Do K-12 schools have direct-dial or dedicated network connectivity?

The State Networking Report Survey found that, nationally, K-12 public school districts were far more likely to have dial-up connectivity than the higher speed, higher capacity dedicated connectivity in spring 1996. In addition, a tandem national study conducted by the Texas Education Network, or TENET, in fall 1996 found the network connections often used by rural school districts had lower bandwidth—and therefore, fewer capabilities—than those often used by urban school districts. See K-12 Education Makes Progress in Accessing and Using Telecommunications Networks and Is There Equity in Network Access by Rural and Urban School Districts? in "Themes from the Survey" for further information.

and incorporate the rich, widely distributed information and expertise available through the Global Information Infrastructure.

School administrators fortunate enough to have powerful network connections can link up to distance education courses accessed through interactive video conferences transmitted over telecommunications networks. Like teachers, administrators can exchange information with their colleagues through electronic newsgroups and e-mail lists, where postings about specific topics and announcements about professional conferences appear.

Perhaps most important, visionary school administrators who take advantage of network connectivity can prepare their students and faculty for new careers and new forms of knowledge called for in the emerging information economy.

Networks Strengthen the New Information Economy

Today's students will require new job skills to contribute to the future information economy. Students need access to telecommunications networks while they are in school so they can bring these skills to employers after graduation.

Many experts have stated that computer literacy—including usage of digitized information—has become an increasingly necessary skill:

- The Children's Partnership estimated that, in 1984, 25 percent of all jobs required computer and/or networking skills; by 1994 the percentage leaped to 47 percent of all jobs. The Partnership projected that by the year 2000, computer or networking fluency would be required in 60 percent of all jobs.[13]
- As early as 1991, the U.S. Department of Labor forecast that technology skills are and will be among the five workplace competencies essential for job performance.[14]
- Only 62.2 percent of American students complete one year of college or more, making it crucial that K-12 schools prepare young adults for an economy driven by information.[15]

K-12 educators must begin to teach students how to access information, discriminate between reliable and questionable information, and apply their new knowledge in shared environments. It's in addressing this last, demanding skill that telecommunications networks excel. By delivering to school computers previously unimaginable amounts of information and communications services—from prosaic statistics on metropolitan traffic patterns to eye-popping video teleconferencing—networks provide students and educators unparalleled exposure to an astonishing array of data. Used wisely, school networks can prepare students and educators for the emerging economy.

America is becoming a society in which technology literacy is essential. People without basic skills in gathering and applying information and sharing it over networks will suffer a distinct disadvantage to those who have this knowledge. As FCC Chairman Reed Hundt vowed,

> Well, the last two years in the communications revolution have all been about change—in both the business sector and in the technology laboratories—and they are and they ought to be about change in policy as well....We have said, Let's move in new directions, Let's have the will to change....It's a hard thing to...open up ourselves to the possibility for change so that we can be responsive to the needs of all Americans....We should be talking about delivering public benefits to everyone, and we can do this in this country. We are rich enough to do it. We have the creativity to do it. I just don't buy the idea that if you want a quality education you have to go to private school—or just forget about it....So I'll say it again: we should be talking about delivering public benefits to everyone in this great nation of ours. Everyone.[16]

When policymakers outfit K-12 public schools with telecommunications network connections and network-ready equipment, they take a vital first step in ensuring no one will be left out.

The Purpose of This Report

T*he State Networking Report* is first and foremost a status report; it is a snapshot of a specific moment in national K-12 network development, catching the country at a time when information services are burgeoning and K-12 education has stepped up to claim the benefits of these technologies. It depicts the status of state education telecommunications network development and usage in April and May of 1996—a moment of transition, as described by the heads of educational technology initiatives in each of the 50 states and the Commonwealth of Puerto Rico.

These data as reported by respondents from each state and Puerto Rico are reproduced in 51 "State Profiles," which begin on page 39.

The State Networking Report Survey also sought to identify factors that are more or less related to progress in network infrastructure development and usage in K-12 schools. Notable patterns in interviewees' responses appear in "Themes from the Survey":

- K-12 Education Makes Progress in Accessing and Using Telecommunications Networks
- Is There Equity in Network Access by Urban and Rural School Districts?
- The Role of State-Level Technology Planning for K-12 Networks
- How States Are Funding Networks for K-12 Education
- The Collaborative Role State Government Plays in K-12 Network Development
- Private Sector Partnerships That Support State K-12 Networks
- How Educators Get Training in Network Usage

These sections summarize findings of individual variables studied in the report.

Highlights from a trend analysis written for policymakers appear in Guidelines for Future Action: Other Patterns Found in the State Networking Report Survey. It is based on the work of William R. Kelly, a sociologist who researches political and social policies at the University of Texas at Austin. He developed the research design for the State Networking Report Survey. The analysis, identifying noteworthy relationships among survey datasets, is reproduced in full in Appendix A.

During summer 1996, the Texas Education Network, or TENET, conducted a related study examining and comparing the quality of Internet connectivity for one rural school district and one urban school district in each of the 50 states and Puerto Rico. This study is intended to document whether urban and rural primary and secondary schools had equity of access in network connectivity. The findings of this study are summarized in Is There Equity in Network Access by Urban and Rural School Districts? The TENET data and a statement of findings prepared by TENET researchers are published in Appendix B.

Respondents for the State Networking Report Survey are identified in Appendix C, which also contains contact information for officials in state education agencies responsible for K-12 network development in each of the 50 states and Puerto Rico. Contact information also appears for the state regulatory boards widely known as public service commissions or public utility commissions.

The questionnaire that was the basis of the State Networking Report Survey appears in Appendix D.

Research Methods

by William R. Kelly

The State Networking Report Survey questionnaire was developed in collaboration with the Texas Education Network (TENET) and the Southwest Educational Development Laboratory (SEDL) and was administered by telephone to qualified respondents in state departments of education. A total of 51 interviews were completed with respondents in each of the 50 states and Puerto Rico. The interviews were conducted between April 18 and May 13, 1996. The interviews averaged approximately 25 minutes in length.

The questionnaire consisted of 67 items that addressed the issues listed above as well as demographic/profiling information about each state's educational system (number of students, number of districts, etc.). Data on the distribution of the state's population in rural and urban areas, as well as per capita income, were added to the dataset for this analysis from data provided by the United States Bureau of the Census.

It is important to note that during data collection, we neither relied upon nor expected that respondents would consult documentary evidence while responding to the questions posed by the interviewers. Thus, the answers to the questions in the survey are based on respondents' perceptions. Inasmuch, care must be exercised in analyzing all but general patterns and trends in the data, and care must also be exercised in drawing conclusions about the state of telecommunications as reported by the survey respondents.

Respondents for the State Networking Report Survey

Fifty-one respondents, representing each state and Puerto Rico, were interviewed for the State Networking Report Survey. Each respondent was identified and recommended by his or her chief state school officer.

Selected for their dual expertise in telecommunications network technology and their state's K-12 public education policies, respondents were expected to have knowledge of several subjects: technical issues, such as the type of network connectivity in use in school districts; network access and usage levels by public school educators and students; the state's telecommunications plans for network development; statewide efforts to coordinate K-12 networking with public and private sector partners; funding sources and strategies; and telecommunications training for educators, including sources, availability, and the topics taught in the state.

Due to this breadth of subject matter, survey designers asked the chief state school officers to select highly placed state officials, on the assumption that such respondents would bring unique statewide perspectives and a high degree of knowledge to the interviews.

Four interviewees direct the public education networks in their states, while 46 of the 51 respondents oversee or coordinate programs in state education or technology support agencies, giving them in-depth knowledge of statewide networking policies and programs.[18] Twenty-eight members of the latter group direct instructional technology programs for their state's public school systems, while another group of managers specialize in library and resource management, curriculum support, distance education, or other areas of K-12 public education. Ten more respondents are technology specialists, and five coordinate special programs. One is the state assistant superintendent of public schools.

To limit instances of inaccurate data, survey designers gave respondents the options of providing "don't know" or "not applicable" answers to all prompts.

Endnotes

1. Collins, S. E. (1996, December 6). Web66: 5,566 school Web sites. *EDTECH-Educational Technology*. [On-line]. Available e-mail: EDTECH@MSU.EDU. The 5,566 figure also includes more than 2,000 schools from 55 other countries.

2. National Center for Educational Statistics. (1997, February). *Advanced telecommunications in U.S. public elementary and secondary schools, fall 1996*. NCES 97-944. Washington, DC: U.S. Government Printing Office, 1–2.

3. Clinton, W. J. (1997, February 4). 1997 state of the union address. [On-line]. Available: http://www.whitehouse.gov/WH/SOU97/.

4. Snowe, O. J., Rockefeller, J. D., IV, Exon, J. J., & Kerrey, J. R. (1996, April 24). Letter of support to Reed E. Hundt, chairman, Federal Communications Commission, re: Federal-State Joint Board on Universal Service. Proper filing on CC Docket No. 96-45, notice of proposed rule making record of comments for the Federal Communications Commission, 2–3.

5. Reed Hundt's friendly competition. (1996, November/December). *Educom Review*, 31, 6, 33–35. Hereafter referred to as Reed Hundt's friendly competition.

6. Since networks are still relatively new to K-12 schools, researchers have had limited opportunities to test the efficacy of the technology. Further, even model school networking projects have not always had the advantage of rigorous research design. They are often undertaken by pioneering educators whose tight schedules preclude the possibility of follow-up measurements and dissemination of their findings. Yet educators, students, and school administrators have documented anecdotal data that attest to the benefits school networks and network connectivity deliver to K-12 schools.

7. Center for Applied Special Technology. (1996, October). *The role of on-line communications in schools: A national study*. [On-line]. Available: http://www.cast.org/downloads/OnlineRep.RTF.

8. Chun, D. M. (1994). Using computer networking to facilitate the acquisition of interactive competence. *Pergamon 22*, 1, 17. This study examined the usage of networked class discussions for undergraduate college students. Again, similar results have been recorded in comments from educators who have participated in K-12 networking pilot programs.

9. Software Publishers Association. *Report on the effectiveness of technology in schools, '95–96: Executive summary*. (1996). [On-line]. Available: http://www.spa.org/project/edu_pub/summary.htm.

10. Interactive Educational System Design. (1995). *Report on the effectiveness of technology in schools 1990–1994*. Washington, DC: Software Publishers Association, 22.

11. Honey, M. & Henríquez, A. (1996, April). *Union City interactive multimedia education trial: 1993–95 summary report*. CCT Report Issue 3. Education Development Center, Center for Children and Technology. [On-line]. Available: http://www.edc.org/CCT/.

12. Much of this information was taken from a single source: Computer Science and Telecommunications Board, the National Research Council. (1994). *Realizing the information future, the Internet and beyond*. Washington, DC: National Academy Press. Supplementary information was culled from, How is the NII changing our world? (1997). *United States national information infrastructure virtual library*. [On-line]. Available: http://nii.nist.gov/.

13. McKinsey & Company. (n.d.). *Connecting K–12 schools to the information superhighway*. Palo Alto, CA: Author, 7.

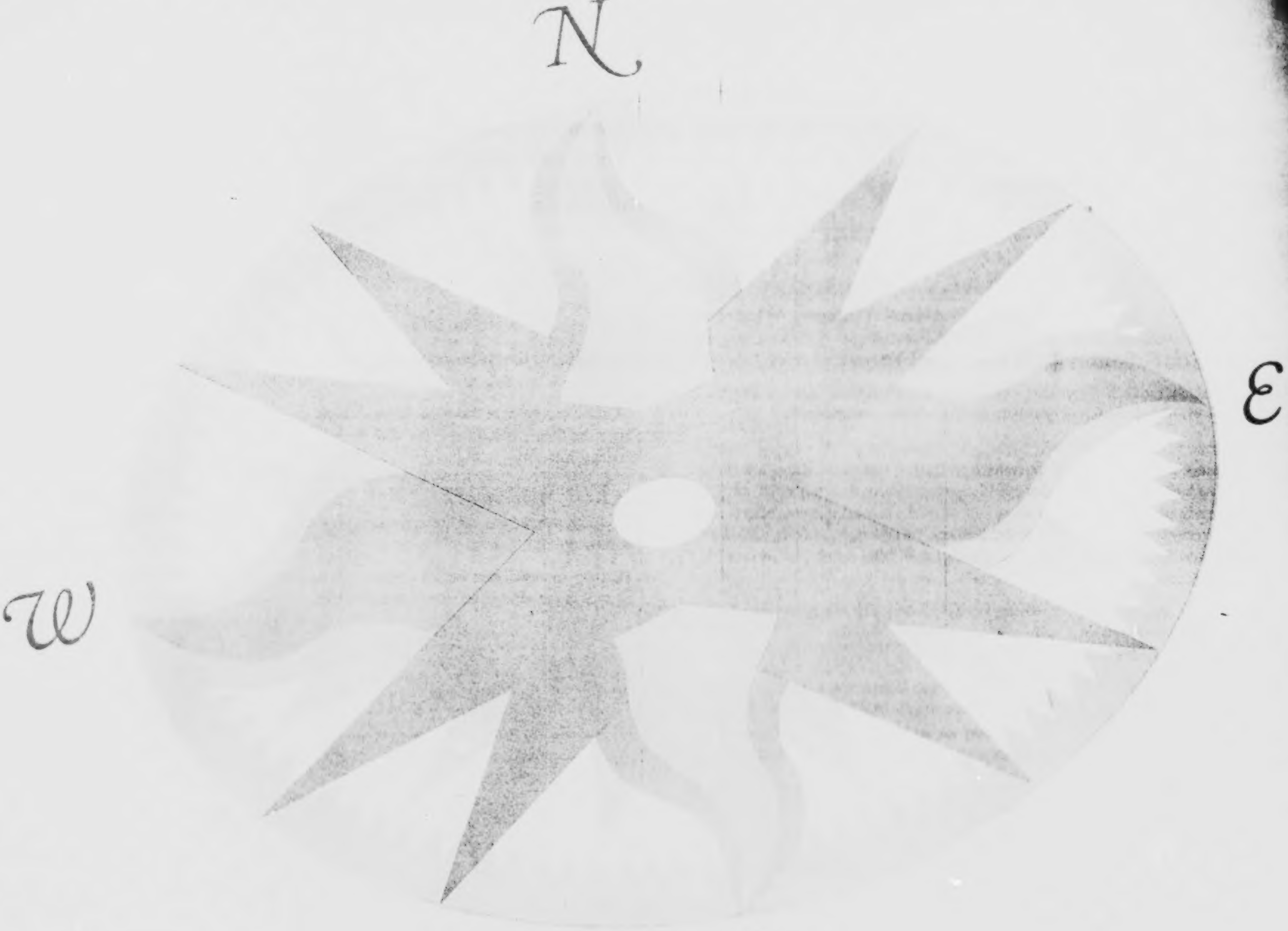
14. Washington State Technology Plan for K–12 Common Schools. (n.d.). Appendix D: What does the research say? [On-line]. Available: http://164.116.18.40/app-dc.html.

15. U.S. Department of Education. National Center for Education Statistics. (1996, June). *The condition of education 1996*, NCES 96-304. Washington, DC: U.S. Government Printing Office, 92.

16. Reed Hundt's friendly competition. 35–37.

17. To simplify the text, the Commonwealth of Puerto Rico is referred to as one of 51 states in the report narrative.

18. Only one respondent was not affiliated with state government; he oversees education technology initiatives in his state from a university.



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II. Themes from the Survey

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K-12 Education Makes Progress in Accessing and Using Telecommunications Networks

To simplify the text, Puerto Rico is referred to as one of 51 states.

Summary

State education agencies are making progress in undertaking or influencing the development of network access for K-12 school districts, according to respondents to the State Networking Report Survey.

In structured telephone interviews conducted in spring 1996, respondents summarized the status of network development and usage in their states. The respondents worked for either state education agencies or public K-12 networks, and most oversaw state-based network development and deployment in K-12 public schools. Data culled from the interviews suggest five indicators of progress, discussed in detail in the following sections:

- Most respondents reported actual and/or anticipated increases in the percentages of school districts with network connectivity for the spring-to-spring years of 1995–96 and 1996–97.
- Nearly half the respondents said their states were also upgrading the quality of network connectivity they provide to K-12 schools by working to deliver dedicated access that can support many users on a single network connection and provide fast data transfer via high-capacity connections. In these states, efforts toward K-12 network development were primarily focused on providing dedicated connectivity alone rather than a combination of direct-dial and dedicated connectivity.
- While in one state as many as one-third of schools had established World Wide Web sites, it was usual that respondents estimated that 10 percent of schools had established Web sites in spring 1996.
- School access to state-subsidized networks is more often used to educate students than for administrative purposes, according to the respondents.
- Respondents consistently reported a disparity between the percentages of educators in their state who *had* network access and the percentages of educators in their state who *used* network access. This disparity was not as pronounced in reported percentages of students who had network access and percentages of students who used access; generally, fewer students overall had access to networks and used that access, but for students there was not the gap separating access and usage figures that occurred with educators.

Progress of Network Access by School Districts

Almost all respondents said school districts in their state had some type of network connectivity through local dial-up or toll-free dial-up access or through dedicated lines. In spring 1996, the type of connectivity most frequently reported by respondents was local dial-up.

Connectivity was not necessarily provided by a statewide education telecommunications network; it may have been provided through a higher education telecommunications network or an Internet service provider. Respondents from four states, in fact, reported that they did not have a state-subsidized network to serve public education, and the New Hampshire respondent indicated that state's school networking efforts targeted local rather than statewide access. Nonetheless, school districts were gaining Internet connectivity, and the numbers grew annually, based on respondents' accounts.

For instance, in this survey nearly every respondent reported an increase in the percentage of school districts with either dial-up or dedicated access between spring 1995 and spring 1996. Nineteen respondents reported that 100 percent of their districts had network connectivity through dial-up or dedicated connections; Exhibit 1 lists these states. Respondents from Delaware and Florida both reported that 100 percent of their districts had dedicated access; a higher quality network connection than dial-up access, dedicated access usually offers fast transfer of data while allowing several linked computers to access and use the network connection at the same time.

Exhibit 1

States Where 100 Percent of School Districts Had Dial-Up or Dedicated Network Connectivity in Spring 1996

- Colorado
- Delaware
- Florida
- Hawaii
- Illinois
- Indiana
- Iowa
- Kentucky
- Maine
- Maryland
- Massachusetts
- Michigan
- New Jersey
- New Mexico
- New York
- North Carolina
- North Dakota
- Tennessee
- Virginia

Exhibit 2

Usage of Dial-Up and Dedicated Network Access in Schools

Usage of State-Provided Dial-Up Network Access	
Classroom Instruction	33 states
Student Resource	35 states
District-Level Administrative Functions	25 states
Campus-Level Administrative Functions	23 states
Usage of State-Provided Dedicated Network Access	
Classroom Instruction	35 states
Student Resource	34 states
District-Level Administrative Functions	14 states
Campus-Level Administrative Functions	15 states

Note: These totals depict spring 1996 usage of state-provided K-12 networks.

The precise quality of this network access cannot be determined by respondents' reports for the State Networking Report Survey. Readers should assume that access by a school district can range from a basic connection that permits school administrators and teachers in a district to use electronic mail to a network connection that links multimedia computers in every classroom to the information-rich features of the Internet. According to the *1997 SPA Education Market Report*, Internet access that school districts had in spring 1996 was apt to have been rather limited, since

> more than half of all schools have access to the Internet in only one location, or no access at all....More computers are being placed in the classroom. With more than half of computers still located in labs, however, the focus of much school technology usage remains centered on 'learning the computer' rather than on the superior goal of 'learning with the computer.' To make that happen, teachers and students need vastly improved access to computers in the classrooms.[1]

Much work remains to be done before the potential of network connectivity is realized by public education. Locating high-capacity network connections on school campuses is a step in that direction.

State Goals for Development of Network Access

In spring 1996, 24 respondents said that current efforts in their state were directed at providing dedicated access, while 21 respondents said that current efforts in their state were directed at providing both dial-up and dedicated access. Respondents from Maine, South Carolina, and Tennessee projected ambitious increases in dedicated access for all school districts by spring 1997.

These factors indicate that, in nine out of ten states, state education agencies or state education technology agencies were actively working to provide Internet access to public schools. Furthermore, by targeting dedicated access as the goal of state-sponsored school networks, a great majority of these agencies sought to deliver high-quality network connections with potential to serve large numbers of K-12 students and educators. The fact that some states had established aggressive goals for providing network connectivity to districts implies a deep commitment to delivering the benefits of these technologies to public education.

Schools with World Wide Web Sites, Spring 1996

Another benchmark of network usage in K-12 education is whether or not a school has established a World Wide Web site. Such sites offer digitized samples of student work, school policy statements, events calendars, messages to parents, and other materials and capabilities. The simple fact that a school has a Web site indicates that people associated with the school—technology coordinators, teachers, students, or parents—have moved from searching the Internet and other networks for information services to participating in the Internet as information providers.

Respondents were asked to report an estimated percentage of schools in their state that had established Web sites by spring 1996. Usually low, these percentages were fairly evenly distributed over a 33-percent range. The highest percentage—33 percent—was reported by the Arizona respondent, while the Nevada and Puerto Rico respondents reported that none of their K-12 schools had Web sites. Eleven interviewees said 10 percent of their schools had Web sites, the average percentage reported.

Policymakers should view these estimates with some caution. Since no organization exists to register every site, no one knows the precise number of school Web sites that are in existence in the United States and Puerto Rico at any single moment. Moreover, new Web sites tend to appear overnight. Finally, schools gain their network access from a jumble of public state or local networks, private sector Internet service providers, and commercial network services such as America OnLine, so the keepers of Internet gateways cannot be expected to track Web site development. Thus, even experts on networks can only roughly estimate Web site counts.

Network Access and Usage in K-12 Schools

Wiring schools with network connectivity must not be the final goal of such state-level efforts. Policymakers need to consider what schools do with the network access that results from connectivity.

According to interviewees, school access to state-subsidized networks was used more often for educational rather than administrative purposes. The most frequently reported usage of network connectivity, occurring in nearly three-quarters of the states, was of both dial-up and dedicated access to state networks as a student resource. In nearly as many states, dedicated and dial-up access to state networks reportedly were used in classroom instruction. In roughly half the states, respondents said access to state telecommunications networks was used to support administrative functions at the district and campus levels; see Exhibit 2 for precise counts.

This pattern seems to indicate that student usage takes precedence over administrative usage in school districts with state-provided network connectivity.

State initiatives that support the usage of Internet-based classroom resources have mixed support, according to the respondents. While there were plans to correlate materials from the World Wide Web to state curriculum frameworks in three out of five or 31 states, respondents from far fewer states (22) said the department of education in their state would consider adopting Web materials as textbooks; these data may indicate that, in many states, Web-based materials had received support from state education policymakers as supplemental rather than primary classroom materials. On the other hand, there also was almost universal support of Internet-based communication of state education policies based on the high number of states that had established Web sites for their state education agencies (SEAs): 46 of 51 states had such SEA Web sites in spring 1996, and by fall 1996 every state except Puerto Rico had an SEA site.

Some might argue that these factors indicate support of network technologies by policymakers in state education agencies. Viewed together, these three data probably mean that, in spring 1996, many state education agencies were exploring the potential of network-supported education for students, educators, and administrators; 1996 was indeed a transitional period, when network technologies reached more school districts than ever before. Yet most educators and school policymakers were still learning how to deploy these technology tools in classrooms.

State-Subsidized Access and Usage of Networks by Educators and Students

While the number of school districts with network access has consistently risen, the levels of usage of these network connections are not as promising, according to respondents. Nearly all respondents who provided access and usage levels of network connectivity in their state reported a disparity between the percentages of educators who *had* network access and the percentages of educators who *used* it. Reported percentages for educator access were almost always higher than those for educator usage. The Ohio respondent's percentages typify this pattern: 50 percent of educators had network access, and 20 percent of educators used that access.

The disparity separating those with network access and those using that access did not occur when respondents reported student access and usage of state-subsidized telecommunications networks. Student access and usage levels were more often on a par than the access and usage percentages for educators. Yet student access and usage percentages were consistently lower overall than those for educators. For example, interviewees from Hawaii, New Mexico, and Ohio reported that 10 percent of their students had access to networks and 10 percent of their students used that access.

Why these data show a gap in access and usage levels for educators and not for students is not known. One possible reason why the gap occurred might lie in the degree of training in network tools available to teachers; a majority of respondents reported that network usage training was only moderately available to teachers. Moreover, anecdotal evidence shows that many teachers, busy with instruction, preparation, grading, and other duties, lack the time they need to explore and master network technology tools. Unless they can turn to a network computer reserved for faculty usage, teachers may also lack readily accessible equipment. On the other hand, when students do gain access to networked technologies, they often receive regular weekly or daily instruction in their usage by technology specialists—they're gradually trained to use computers and network access. Students also are likely to have regularly scheduled computer lab time to develop and expand their skills—although when students get less than one hour per week on a computer, skill development is likely to progress at a very slow pace.[2]

Clearly, these data engender more questions than answers: Was there actually a disparity in the levels of access and usage of network technologies by educators? Does this gap persist today? Did this gap also occur with students, in contradiction to the findings of this study? What were the possible causes of this disparity? Above all, how can policymakers and educators remedy the problem?

Is There Equity in Network Access by Urban and Rural School Districts?

Summary

Interviews conducted during spring 1996 showed disparities in network connectivity between urban and rural school districts.[3] Connectivity levels reported by respondents indicated that urban and rural school districts did not have equal access to networks at that time. In a separate study undertaken in fall 1996 by researchers at the Texas Education Network, or TENET, interviews were conducted with technology coordinators from one "typical" urban and one "typical" rural district in each of the 50 states and Puerto Rico. The TENET study found that rural school districts were far more likely to have lower capacity network connections than their urban counterparts. State and federal policies appeared to have been addressing these inequities.

Disparity in Equal Access

In addition to estimating the percentages of local dial-up, toll-free dial-up, and dedicated access available to all school districts in their states, respondents reported network connectivity percentages for urban and rural school districts separately. Some did not cite percentages, registering "don't know" responses instead, yet the majority of respondents did provide estimated percentages. Respondents from several states also reported that 100 percent of their school districts had local dial-up, toll-free dial-up, or dedicated network access in spring 1996, somewhat nullifying an impression of broad differences in urban versus rural districts' connectivity.

Interviewees' reports on 31 states yielded a pronounced pattern: as of spring 1996, urban school districts were approximately three times as likely to have local dial-up or dedicated access as rural school districts. Nineteen respondents in this group reported that 100 percent of their urban-only districts had local dial-up network access, while seven respondents said 100 percent of their rural-only school districts had local dial-up network access in spring 1996. The reported percentage levels for urban-only and rural-only school districts with toll-free dial-up access were often similar, albeit lower overall than the percentages for local dial-up or dedicated access.

In terms of states where low percentages of school districts had network connectivity, rural-only school districts were three times as likely as urban-only districts to lack network connectivity or have low statewide percentages of districts with connectivity in spring 1996. Fifteen respondents reported that 10 percent or fewer of the rural-only school districts in their state had local dial-up connectivity, while five respondents reported that 10 percent or fewer of the urban-only school districts in their state had local dial-up connectivity.

This pattern of unequal access was repeated to a lesser degree for dedicated connectivity in spring 1996. According to the respondents, in one-fifth or 11 of the states, 10 percent or fewer of the urban-only school districts had dedicated connectivity. In half or 25 of the states, however, 10 percent or fewer of the rural-only school districts had dedicated network connectivity.

In short, in many states, there was a pronounced pattern in which urban school districts were far more likely to have network connectivity of any type than rural school districts in spring 1996. A new study might investigate whether this pattern continues to exist.

Disparity in Increased Levels of Access

Respondents also estimated the annual increases in the percentages of districts with local dial-up and dedicated network access. These increases were often higher for urban school districts than for rural school districts. Urban-only districts were also more likely to have increases in dedicated access than rural-only school districts from spring 1995 to spring 1996. According to respondents' projections for spring 1996 to spring 1997, however, the situation seemed to be improving, and the disparity between urban-only and rural-only school districts with dedicated access seemed likely to diminish. Network developers in several states seemed to be working to provide dedicated network access for all school districts.

For example, respondents from only two states reported that all their school districts had dedicated connectivity in 1996; respondents from seven states projected 100 percent of school districts with dedicated connectivity one year later, in 1997. A study could investigate if this trend toward more equalized access to dedicated network connectivity between urban and rural districts holds true today.

Disparity in Equal Access in the TENET Study

The pattern of findings from a study conducted by TENET from August 1 to September 31, 1996, is very similar to those patterns shown by State Networking Report Survey interviews: urban school districts were apt to have higher quality network connectivity than rural school districts as measured by the bandwidth, or the capacity, of the districts' network connections.

TENET researchers contacted the state-level respondents to the State Networking Report Survey from each of the 50 states and Puerto Rico and asked them to identify in their state one "typical" urban school district and one "typical" rural school district that had network connectivity. TENET researchers then interviewed the technology coordinators from these 102 school districts, asking them to describe the bandwidth of the network circuit connecting their school district to a network or to an Internet service provider.

District-level respondents to the TENET study indicated that the bandwidth of rural-only districts' network connections often was significantly lower than that of connections in urban-only school districts. For instance, the bandwidth most frequently cited by respondents from rural school districts was 56Kb, while in urban school districts it was 1.54Mb (a T1 line); in other words, urban school districts commonly reported network connections that permit data transfer 1,050 times faster than those used by rural school districts. Bandwidth and Telecommunications Networks provides a fuller explanation of bandwidth and estimates of data transfer speeds.

It should be noted that many of the school district technology coordinators interviewed by TENET researchers said they planned to upgrade their network connectivity in the near future, so these conditions may have changed since fall 1996. Data from the TENET study are presented in Appendix B.

Bandwidth and Telecommunications Networks

Bandwidth is a measurement of a network circuit's capacity to carry data and the speed at which data is carried. Bandwidth can be easily understood with an analogy to plumbing pipes. A pipe's width determines its capacity to carry water as well as the speed with which water travels through the pipe. The larger the pipe, the more water it can carry, and the faster the water travels. If the opening at the end of a one-foot-wide pipe narrows to three inches, the water will trickle through the opening and will back up in the pipe.

This back-up-and-trickle effect is similar to what happens when computer users have a low-capacity, or a low-bandwidth, connection to high-speed telecommunications networks. The speed with which data are carried over a network circuit slows down at the point of connectivity, creating a backup. Data pass through the data connection eventually, but they move very slowly.

The TENET study found that rural school districts were more likely than urban districts to have low bandwidth connections, which means that users in rural districts were more likely to have longer waits when sending or receiving data over telecommunications networks.

Complicating this situation are the variable sizes of the data packets transmitted over telecommunications networks. Since different kinds of data are transmitted in files of different sizes, they vary in the length of time they need to pass from a network circuit through the network connection to a computer. A 150-page document transmits as a smaller file than a video clip and thus moves over the network faster. In short, the lower the bandwidth, the slower the network connection, and the longer users must wait for information files to travel to or from their computers over the network.

The size of data files is usually measured in bits, bytes, kilobytes, and megabytes. A **bit**, the equivalent of a binary digit, either 0 or 1, is the smallest unit of data information and the basic building block of digitized information. A **byte** is a data unit composed of eight bits. One byte equals one character. A **kilobyte** is a data unit of 1,024 characters, or bytes. Kilobyte is often abbreviated as Kb or K. A **megabyte** contains approximately one million bytes or 1,024 kilobytes. Megabyte is often abbreviated as Mb or M.[4]

The table on page 19 should give readers an idea of how these terms translate into the theoretical speeds required by different sorts of data.

State and Federal Policies That Address Equity of Access

By spring 1996, legislators in many states had taken steps to provide a safety net for underserved K-12 populations who were not able to obtain their own Internet connectivity, according to State Networking Report Survey respondents. Respondents said there was such an initiative in 38 states, while 13 respondents reported no such initiative existed in their state.

On the federal level, the universal service provisions of the *Telecommunications Act of 1996* were intended to deliver greater equity of technology access to resource-bound or geographically isolated public education systems by providing them with guaranteed discounts for network connectivity and services. In a show of consensus unusual in this study, 46 of 51 respondents said the legislation would have a "positive impact" on K–12 network development in their states, while very few said the bill would have "no effect" on network development in their states. No respondents characterized the impact of the act as "negative."

One policy-based initiative designed to bring network connectivity to public schools is "NetDay," a cost-effective way for public schools to attain the benefits of network connectivity. During these statewide events, corps of community volunteers donate materials, install the wiring, and mount a network on public school campuses. NetDay volunteers typically build a local area network within an individual school building and set up network connections to wide area networks beyond the campus. State education agencies often help coordinate NetDay activities by identifying schools that lack network connectivity for local NetDay volunteers.

According to respondents, policymakers in only 28 states were considering implementing NetDay activities to wire all the school buildings in their states for network connectivity in spring 1996. By the close of 1996, however, NetDays had been planned or had taken place in at least 40 states, according to a NetDay96 spokesperson. By spring 1997, every state except one had planned or staged a NetDay.[5]

Such measures, combined with the indications of progress in state education network development and usage, may ease the disparities in network access and capabilities reported by interviewees in the two studies. They provide new tools and directions to consider for federal and state policymakers who are addressing issues of equity in educational technology.

Files and Transmission Speeds

The table and note were posted on the World Wide Web site of the Farmington, Utah, school district at **http://www.davis.K-12.ut.us/etc.WEBTERMS.HTM#T**.[6]

Device or Method	Bandwidth	150 Page Book	300Kb Picture	475Kb Audio Track	2.4Mb Video Clip
28.8Kb modem	28.8Kb	2.22 min.	1.39 min.	2.22 min.	11.10 min.
56Kb line	56Kb	1.14 min.	42.60 sec.	1.14 min.	5.70 min.
ISDN-64 line	64Kb	1.00 min.	37.50 min.	1.00 min.	5.00 min.
ISDN-128 line	128Kb	30.00 sec.	18.80 sec.	30.00 sec.	2.50 min.
T1 line	1.54Mb	2.48 sec.	1.55 sec.	2.48 sec.	12.40 sec.
Cable modem	10–30Mb	.38–.13 sec.	.24–.08 sec.	.38–.13 sec.	1.9–.64 sec.
T3 line	45Mb	.08 sec.	.05 sec.	.08 sec.	.42 sec.

Note: These are theoretical speeds, and the actual throughput may be as much as 25–50 percent less.

The Role of State-Level Technology Planning for K-12 Networks

Summary

When an undertaking is as expensive and complex as wiring public elementary and secondary schools for network connectivity, careful planning is essential to ensure that the process is effective and efficient. Reports from respondents suggest that by spring 1996 policymakers in every state but two had developed or were developing state-level telecommunications plans for K-12 network development; moreover, policymakers in a majority of states had implemented these plans to some degree. That degree of completion provides an additional set of benchmarks for measuring demonstrated progress in network development for public education.

The Status of Technology Planning in the States

Respondents reported that, by spring 1996, 34 or approximately three-fourths of the states had a long-range plan for telecommunications networks for K-12 education. Moreover, 15 states that had not yet established such plans were in the process of developing them. Respondents from two states reported no plan either in place or under development.[7] In 26 or half the states, the K-12 plan was part of a larger statewide plan for telecommunications. These high numbers probably indicate that, just as network developers in most states are working to provide high-quality network connectivity to schools, they were apt to have followed a high-quality network implementation process. Further, it's possible that in the 26 states K-12 network development was coordinated with similar efforts intended to serve other public institutions. It would be valuable to know if coordinated and thorough technology planning *is* an effective way to implement wide-ranging technology projects. While this study indicates technology planning is an indicator of progress, further research is needed.

Technology Plans as Benchmarks of Network Development

To establish levels of progress that state policymakers had made in completing their K-12 telecommunications plans, interviewees were asked how much of their state's plan had been completed by spring 1995 and how much by spring 1996. Thirty-three respondents expressed some knowledge of the degree of progress their state had made in completing their telecommunications plans for both years, and all 33 reported annual increases in completion levels. Clearly, states are working to provide network access and technology development for their public education systems.

By spring 1996, nine states in this group had completed 50 percent or more of their K-12 telecommunications plans, based on respondents' estimates. Interviewees from 14 states said between 25 and 49 percent of their plans had been completed, and respondents from ten states said from 0 to 24 percent of their plans had been completed. Lists of the states that had completed at least 25 percent of their K-12 telecommunications plans by spring 1996 appear in Exhibit 3.

Comparing the percentages of completion that interviewees provided for spring 1995 and spring 1996 provides a means of establishing the degree of progress with which state policymakers had put their K-12 telecommunications plans into action. The most frequently reported degrees of progress from spring 1995 to spring 1996 were in the 0-to-24-percent range. In 21 states, network developers had made anywhere from 0 to 49 percent progress in completing their K-12 telecommunications plans from spring 1995 to spring 1996, based on respondents' estimates. Interviewees from Hawaii and Indiana indicated degrees of progress of at least 50 percent between spring 1995 and spring 1996; their respondents reported that 0 to 25 percent of the plans had been completed in 1995 and 50 to 75 percent of their plans was completed in 1996.

In 12 states, the degree of progress reported by respondents remained within the 0-to-24-percent range from spring 1995 to spring 1996. This lower range does not indicate a lack of progress in completing their plans; rather, it means the progress made in these states occurred in smaller increments than that in other states.

Exhibit 3

States and Completion of Telecommunications Plans

States That Had Completed 50 Percent or More of Their K-12 Telecommunications Plans by Spring 1996

- Florida
- Hawaii
- Idaho
- Indiana
- Iowa
- Nebraska
- New York
- Oregon
- Utah

States That Had Completed 25 to 49 Percent of Their K-12 Telecommunications Plans by Spring 1996

- Georgia
- Kentucky
- Maine
- Michigan
- Nevada
- New Jersey
- New Mexico
- North Carolina
- Ohio
- Oklahoma
- Tennessee
- Vermont
- Washington
- West Virginia

How States Are Funding Networks for K-12 Education

Summary

Funding emerged as "the most daunting barrier" to K-12 network development in fall 1994, when state-level decisionmakers rated such barriers for the 1994 counterpart of the present survey.[8] In spring 1996, policymakers appeared to be addressing this concern by diversifying funding sources, the case in a majority of states. Yet the generally high importance ratings respondents gave to all funding sources suggests that every possible source of funding support is important to the respondents, many of whom are state officials responsible for state-based K-12 telecommunications networks.

Many states had maximized and diversified funding sources for network development, according to respondents. Nonetheless, in spring 1996, state government in a majority of states provided the largest share of the funding for the development of state networks serving K-12 schools. Also in spring 1996, many respondents projected that most 1997 funding contributions for K-12 network infrastructure development would increase or stay at 1996 levels; however, a notable number of respondents expected the level of funding from the federal government to decrease in 1997.

Sources of Funding for K-12 Network Connectivity

Respondents identified the sources of funding available in their state in spring 1996 for the development of K-12 network infrastructure. Options included local government, state government, federal government, public/private sector partnerships, and private or corporate foundations. Some respondents named additional funding sources.

Consensus on this matter emerged among interviewees. In spring 1996, the most frequently identified source of funding for network infrastructure development was state government, named by respondents from 47 states. The next most frequently identified funding source was private sector partnerships, a source in 46 states, according to the respondents; such programs will be explored in greater depth later in this report. The federal government was identified as a funding source by respondents from 41 states, as was local government. Private and corporate foundations were identified by 35 respondents as current funding sources. Based on these frequency counts, it appears that many state leaders intent on developing network infrastructure for schools were striving to diversify their funding sources at the time of the interviews.

Seven respondents identified additional sources of funding for network infrastructure development available to their states in spring 1996. These included school-based property taxes and local school districts, public television, municipal bonds, and rulings by the state public utility commission. The Washington respondent named the state cooperative for school information services, and the Michigan respondent indicated some funding was "fee-based."

A Summary of Funding Proportions Contributed by Sources

While there was consensus among respondents in the usage of multiple funding sources to finance network infrastructure development, great variations were noted from state to state in the amounts contributed by those funding sources. These variations are so broad that few generalizations can be made about funding strategies from state to state.

For example, the respondents from Florida and Kentucky reported that 100 percent of the funding for K-12 network infrastructure development was provided by state government; at the opposite end of the spectrum, respondents from Arizona and Wisconsin stated that none of this funding came from state government. The Colorado and Washington respondents said that local government provided 95 and 94 percent, respectively, of their states' K-12 infrastructure development funding, while respondents from 11 states reported that local government contributed no funding for this purpose.

Respondents from 46 states provided estimated percentages, applicable in spring 1996, of the total funding of K-12 network development infrastructure drawn from state government, local government, federal government, state

A Closer Look at Funding

In a number of states, relatively high percentages of funding for network infrastructure development were reported as coming from state government. In 19 states, the proportion of funding contributed by state government ranged from 75 to 100 percent, according to interviewees, while in 14 states, the proportion of funding contributed by state government ranged from 50 to 74 percent. State government contributions in the range of 10 percent or less were reported by respondents from seven states.

In nine states, local government contributed 50 to 100 percent of the total state funding for network infrastructure development, respondents said. Respondents from 21 states estimated that funding from local government was in the range of 10 percent or less.

The highest proportion of federal governmental funding used to develop state-level K–12 network infrastructure was 30 percent, as estimated by respondents from Louisiana, Missouri, and Rhode Island. Respondents from 42 states reported federal government contributions of 10 percent or less.

In spring 1996, respondents from 39 states reported contributions from partnerships with private sector telecommunications service providers in the range of 10 percent or less. In Rhode Island, the contribution from such partnerships was 30 percent, the highest proportion in this funding category reported by a respondent.

For all the states, respondents' estimates of the proportion of total funding for state network infrastructure development provided by corporate donors or private foundations were relatively low. Respondents from Oklahoma and Pennsylvania reported 15 percent foundation funding—the highest estimate of such funding. Respondents from 42 states reported foundation funding in the range of 10 percent or less.

partnerships with private sector telecommunications service providers, and private or corporate foundations.

One broad pattern emerged from these estimates: State government usually provided 50 percent or more of the funding for network infrastructure development, according to the respondents. Local government, usually the source of 10 to 20 percent of funding, often contributed the next largest portion of such funds, while it was usual that the federal government and private sector partnership programs each provided 3 to 7 percent of the funding. Foundations often contributed 0 to 5 percent. Exhibit 4 lists states where state government provided at least 75 percent of funding for K-12 network development.

Since such a sizable proportion of the funding for K-12 networks is provided by state government according to interviewees for the present study, it is not surprising that respondents for the 1994 study of state networking rated funding as such a formidable barrier to network development.

Also note that K-12 public education is typically paid for with state and local funds; in fact, in most states K-12 public education is constitutionally the responsibility of the state. Based on respondents' reports, this funding policy appears to have carried over to school network development and implementation programs.

Funding Projections for Spring 1997

Interviewees also projected the levels of funding their states would receive one year later, in spring 1997, for K-12 network development. They estimated whether funding levels from state, local, and federal government sources as well as from private sector partnerships and private or corporate foundations would increase, decrease, or stay the same one year after the interviews.

Overall, respondents expected the levels of funding to increase or stay at current levels from every source except the federal government; respondents from 16 states expected federal funding would decrease in 1997, the only funding source from which a number of respondents projected funding decreases. In contrast, respondents from roughly half the states expected that funding from local government would increase, while a few more respondents projected that such funding levels would stay the same. This pattern was repeated with foundation funding: approximately half the respondents expected it would increase, while slightly less than half expected it would stay the same.

As for funding from private sector partnerships, more than half the respondents projected it would increase, while slightly less than half projected it would stay the same—an indication, perhaps, of the growing importance with which respondents viewed private sector support of public networks.

An even higher proportion of respondents projected that funding levels from state government would increase in 1997, while respondents from approximately one-quarter of the states expected that state funding levels would stay the same. Again, this may indicate that the respondents expected state government to assume an even greater role in funding network development for their state's public schools in 1997.

Yet roughly one-third of the respondents expected that federal funding levels for state K-12 network infrastructure development would decrease in 1997. Respondents from a few more states expected federal funding would stay at 1996 levels; approximately one-fifth of the respondents expected federal contributions would increase. It is possible that the funding increases many respondents projected from state government and private sector partnership programs were intended to compensate for an anticipated loss of federal funding. Further research could clarify this matter.

Ratings of the Future Importance of These Funding Sources for K-12 Network Development

Projected budgets are an essential part of the technology plans and implementation for state telecommunications networks. Respondents were asked to rate the importance of funding sources for future development of K-12 networks on a scale of 1 to 7, with 1 representing "not at all important" and 7 representing "very important."

Nine out of ten of the respondents expected state-level funding would continue to be "very important" to future network infrastructure development. Respondents from 40 states rated state funding 7, and those from another six states gave state funding a 6.

Funding from local governments also was rated as "very important" to the future development of K-12 networks by 25 or about half the respondents. Again, this is probably related to the traditional dominant role local government has played in K-12 public education.

Several respondents rated federal government funding and private sector partnership programs similarly as "very important" to the future development of their state's K-12 networks. This high importance rating was assigned to federal funding sources by 11 respondents and to private sector partnership programs by 12 respondents. In light of the funding decreases from federal government anticipated by one-third of the respondents, it is interesting that federal funding continued to earn high importance ratings from most respondents; all but three of the 16 respondents who projected federal decreases in funding nonetheless gave a moderate to high importance rating to federal sources.

Respondents' ratings of the importance of foundation funding for the future development of K-12 networks tended to cluster at the center of the rating scale. Respondents from a total of 27 states rated foundation funding with a 4 or a 5, indicating that a majority perceived such funding as moderately important to their state's future K-12 network development.

Few respondents rated any of these funding sources at the lower end of the 7-point scale; the great majority of respondents' ratings tended to occur at the higher end of the scale, in the 5 to 7, "important" to "very important," range. The generally high ratings probably indicate that all funding sources are of importance to respondents, many of whom are charged with developing network connectivity for K-12 schools.

Exhibit 4

States Where State Government Provided 75 to 100 Percent of Funding for K–12 Network Infrastructure Development

Arkansas

Florida

Hawaii

Idaho

Illinois

Iowa

Kentucky

Minnesota

Montana

Nebraska

Nevada

New Jersey

North Carolina

Ohio

South Carolina

Tennessee

Texas

Utah

Virginia

The Collaborative Role State Government Plays in K-12 Network Development

Summary

In most states, public telecommunications networks were not under development exclusively for K-12 public education. Other state agencies and public organizations were also taking advantage of telecommunications technology to develop networks for disseminating information to citizens and policymakers. When development of telecommunications networks and information services is concurrent throughout state government agencies, efficiency is often gained, while the costs of network infrastructure development are shared by different public organizations. Moreover, concurrent development of network-based resources can mean that more resources ultimately will become available to K-12 educators and students.

Respondents reported that, in a majority of states, state legislatures, higher education institutions, public libraries, and state departments of education had used networks to post information. State tax authorities and state public utility commissions were far less likely to provide information services on public networks. Community freenets—the free or low-cost public networks established in some cities and communities—existed in some form in about three-quarters of the states. When rating collaboration among public institutions in developing K-12 networks, respondents usually gave high ratings to state legislatures, higher education institutions, public libraries, and state departments of education and low ratings to community freenets, state tax authorities, and state public utility commissions. The public utility commissions of relatively few states had established special tariffs for telecommunications services for schools in spring 1996. Nonetheless, a majority of respondents characterized such tariffs as "very significant" in state networking efforts for K-12 public education.

Collaboration in Network Development by State Agencies

Respondents from most states reported that, in spring 1996, public telecommunications networks and network-based information services were under development or already active for a number of agencies in their states. Among the specific agencies and public entities every respondent discussed were public higher education, public libraries, the state department of education, the state legislature, community freenets, state tax authorities, and the state public utility/public service commission. Several respondents named other state public institutions and agencies as well.

Respondents from 48 of the 51 states said information was available over public networks from their state's higher education institutions and from public libraries. The state departments of education provided information over public networks in 46 states, according to respondents, as did the state legislatures of 40 states. Community freenets provided network services in 37 states.

Respondents' accounts of network activity by state tax authorities and state public utility commissions were less consistent. State tax authorities offered information services over public networks in 18 states and did not offer such services in 16 states, according to interviewees; "don't know" responses were provided by 17 interviewees. State public utility commissions offered information services over public networks in ten states and did not offer such services in 24 states, respondents said; "don't know" responses were returned in 17 cases.

Respondents from 30 or well over half the states identified other state agencies that provided information over public networks in spring 1996. Some of these lists were lengthy or comprehensive—see the State Profiles for New Mexico and Virginia for examples. Many lists included the Governor's Office and other state agencies. Some respondents named education-focused organizations or businesses and nonprofit organizations as well. The Idaho respondent said every state agency there posted information over public networks in spring 1996.

The high level of network-based activity by so many public organizations and state government agencies could bode well for K-12 network development. As Internet usage becomes routine in the daily lives of Americans, education policymakers are more likely to ensure that public school students and teachers are prepared to use the technologies.

Ratings of Collaboration Among State Education Agencies and Other Public Organizations

Many states were developing telecommunications networks for K-12 public schools simultaneously with other public information networks and information services. Since these initiatives were taking place concurrently in many states, respondents were asked to rate the extent to which other state agencies collaborated with their state department of education in developing K-12 network infrastructure in spring 1996. Such information can be valuable to federal and state policymakers as they review technology plans and funding for network development not only for K-12 schools but for all state agencies.

Respondents rated the extent of collaboration among state agencies charged with K-12 network development and the state department of education, public higher education, the state legislature, public libraries, community freenets, the state public utility/public service commission, and state tax authorities. Collaboration ratings were made on a scale of 1 to 7, where 1 represents "not at all" and 7 represents "to a great extent."

The standout in this group was the state department of education—given a 7, the highest rating, by 41 respondents when they estimated the degree of collaboration between their state education technology agency and their state department of education in developing K-12 network infrastructure. It should be noted, however, that more than half of the survey respondents direct or coordinate state-based K-12 network initiatives as employees of state education agencies. Even though this was the only category in which respondents expressed such consensus on a single rating for a single type of state organization, the high ratings may not have resulted from objective evaluation. On the other hand, the high ratings may represent a widely shared commitment to K-12 network development on the part of state education agencies.

There were several categories in which smaller numbers of respondents gave high ratings to the degree of collaboration between the state education technology agency and other state entities in developing K-12 network infrastructure. Higher education received the top rating of 7 from respondents in 21 states. State legislatures were given the highest rating by 13 respondents. Respondents also gave high ratings for the degree of collaboration between state education technology agencies and public libraries: fourteen respondents rated such collaboration with a 7, and ten respondents rated it with a 6.

In one category only did several respondents rate collaboration among state agencies for the development of K-12 networks in the moderate range of 3 to 5. Eleven respondents rated the extent of collaboration between higher education and their state education technology agencies with a 5.

Low collaboration ratings of 1 or 2 occurred: 27 or more than half the respondents rated collaboration between state education technology agencies and state tax authorities with a 1, and 18 respondents rated the extent of collaboration between their state education technology agencies and community freenets with a 1. Collaboration between education technology agencies and state public utility commissions was also rated with a 1 by respondents from 13 states and with a 2 by respondents from ten states.

These low ratings give pause for thought, particularly for community freenets. The State Networking Report Survey did not probe the reasoning that led respondents to give such ratings for these public organizations. It would be unwise to presume that the reported lack of collaboration results from the policies of state tax offices and public utility commissions; as administrative and regulatory agencies, they are not necessarily positioned to collaborate with other state offices. It's quite likely that a different set of forces is at work here—for instance, budget structures in many states sharply limit the role state tax authorities could play in K-12 network development. Public service commissions are discussed below.

But why these ratings for community freenets? Their mission is to provide low-cost or free network access to as many individuals and organizations as possible in their service areas. Why would they not participate in public school networking efforts? Could freenets be so overtaxed with fulfilling their mission that they cannot also provide services to K-12 schools? These are only a few questions among many that could be explored in a study examining state-based collaborative efforts in network development and how network infrastructure development programs vary from state to state.

Public Utility Commissions and Special Tariffs for K-12 Public Schools

State public utility commissions or public service commissions (PUCs/PSCs) can have a direct impact on K-12 network development in the states by establishing special tariffs for public education. In many states, these regulatory boards establish the cost parameters that private sector telecommunications service providers can charge customers.

More than two-thirds or 35 of the respondents reported that the PUC/PSC in their state had not established special tariffs for public education in spring

1996; respondents from only 14 states said their PUC/PSC had established such special tariffs at that time. These factors alone may explain why half the respondents gave a low collaboration rating to their state PUC/PSC. In two states only—Ohio and Texas—were tariff laws or rulings available electronically on the World Wide Web, according to respondents.

Respondents also evaluated the significance of special telecommunications tariffs for K-12 networking efforts in their states. Even with a high percentage of states where no tariffs existed in spring 1996, more than three-quarters or 37 of the respondents indicated that such tariffs would be "very significant" to networking efforts in their state. Seven respondents said such tariffs were "somewhat significant." One respondent said such tariffs were "not too significant," and three respondents said they were "not at all significant."

Policymakers might consider the respondents' information about PUCs/PSCs in light of the proposed universal service provisions of the federal *Telecommunications Act of 1996*. This study followed on the heels of the act, in which provisions were made for a series of discounts in telecommunications services for public schools and libraries. Subsequent negotiations between telecommunications service providers, education telecommunications advocates, interested segments of the public, and the FCC have resulted in an FCC decision to approve discounts beginning in May 1997. Once the discounts are in place, it is probable that the regulatory role of PUCs/PSCs in school networks may change. It remains to be seen precisely how this change will play out.

Private Sector Partnerships That Support State K-12 Networks

Summary

Private sector telecommunications service providers were active in K-12 network infrastructure development programs in many states by spring 1996, according to respondents. Few generalizations can be made about these programs because they vary widely from state to state. Yet such programs often promote network development and usage in schools by easing the financial burdens that inevitably accompany network development initiatives.

In two-thirds or 34 of the states, at least one private sector telecommunications service provider had established a program to encourage network infrastructure building by spring 1996, respondents said. These were often Regional Bell or long-distance service companies, although smaller telephone companies as well as Internet service providers also were mentioned. Best known for providing local telephone services, many of these providers had expanded operations into data transfer over their telecommunications networks. Sometimes the state had provided an incentive, the situation in 14 of 34 states, sometimes these providers had established programs on their own initiative, the case in 11 states, and sometimes state officials and service providers collaborated to set up the programs, as happened in nine states. Forty-five of the 51 respondents characterized such programs as "very significant" or "somewhat significant" for K-12 networking efforts.

Respondents provided their opinions of the best way state government could establish relationships with telecommunications service providers for developing telecommunications network infrastructure. Reproduced verbatim in the individual State Profiles of the *State Networking Report*, these expert opinions have been categorized, with notable numbers of respondents advocating (1) appealing to what is in the best interest of the state and public, (2) utilizing market mechanisms, and (3) centralizing and coordinating state-led efforts.

Major Telecommunications Providers and Network Infrastructure Building

A diverse group of private sector telecommunications service providers were participating in K-12 network development programs in many states in spring 1996, according to the respondents. In the 34 states where such programs existed, Regional Bell companies that had expanded operations from local telephone service to network or wireless telecommunications services were most frequently named. These companies included Ameritech Corporation, Bell Atlantic Corporation, BellSouth Corporation, NYNEX Corporation, Pacific Bell/Pacific Telesis Group, Southwestern Bell Telephone/SBC Communications, Inc., and US WEST, Inc. Respondents from very few states named developers of backbone networks such as AT&T, BBN Planet Corporation, DIGEX, GTE, MCI Telecommunications Corporation, and Sprint Communications. Such was also the case with most of the local and state telecommunications companies named; the latter group includes the Eastern New Mexico Rural Cooperative, the MEANS Independent Telecommunications Company of Minnesota, and others. Oceanic Cablevision, named by the respondent from Hawaii, was the single cable network provider mentioned. Representing Internet service providers with a national subscriber base, MindSpring Enterprises, Inc., alone was mentioned.[9]

Incentives for Such Programs

Respondents' listings of the parties that provided the incentives for these infrastructure building programs were very mixed. Eleven respondents named private sector providers only, implying these businesses had initiated programs on their own. Nine respondents named a combination of state agencies and the private sector providers active in their states; it is difficult to determine the extent to which the different private and public sector participants initiated these programs.

The most frequently named public sector sources of incentives for network infrastructure development were state government entities, reported by 14 or more than one-quarter of the interviewees. These entities may give some insight into the nature of public/private sector partnerships and the forces that brought them into existence.

For instance, respondents from Maine, Michigan, Missouri, Vermont, and West Virginia named their state's public utility commission, which implies that PUC regulations or rulings may have played an important role in promoting private sector involvement in building infrastructure. The Governor's Offices of Delaware, Maryland, and New York were named by respondents from those states, possibly indicating that leadership by highly placed and highly visible policymakers was instrumental in programs there. The Delaware, Mississippi, Oregon, and Texas respondents named their state legislatures, and Utah's respondent noted "legislative funding brought [private sector participants] to us"; the Utah respondent's comment suggests that funding allocations fashioned in the state house might have spurred programs in the other four states. Higher education and/or state K-12 education agencies were named by respondents from Delaware, Georgia, Kansas, and Rhode Island, a clue that there may have been unified effort by public education there. Respondents from Connecticut and Indiana named "state government" in general.

Two respondents named forces other than state government and/or private sector providers as providing incentives for private sector providers to start a network infrastructure building program in their state. The New Jersey respondent identified "a competitive market" as providing the incentive for AT&T and MCI to undertake a network infrastructure building program in his state. The Nevada respondent said federal legislation (probably the *Telecommunications Act of 1996*) prompted Nevada Bell to start an infrastructure building program in her state. Both comments invoke the free market forces and competition among service providers that FCC Chairman Reed Hundt hoped the act would spur.

The Significance of Private Sector Telecommunications Providers in State Network Infrastructure Building

There was notable consensus in how respondents viewed the significance of private sector participation in state networking efforts for K-12 education. Nearly two-thirds or 31 of the respondents described these programs as "very significant," and one-quarter or 13 of the respondents said these programs were "somewhat significant." Very few respondents characterized these programs as "not too significant" or "not at all significant" (three in each category).

All the respondents who reported that private sector service providers had established programs for infrastructure building in their states also described the programs as very or somewhat significant; not one respondent who had actually observed such a program at work in his or her state described it as having little or no significance. Moreover, respondents from ten states without such a program active at the time of the interviews still characterized it as somewhat or very significant to network infrastructure building for K-12 education. All six respondents who said the programs were of little or no significance did not have such programs active in their states.

Such consensus may well imply that respondents with experience in such programs endorse them—and it is possible that their colleagues from states without such programs had observed their efficacy and would consider introducing similar programs in their states.

The Best Way to Establish Relationships with Telecommunications Providers

Interviewees provided anecdotal descriptions of the best way to establish relationships with private sector telecommunications providers for developing the network infrastructure in their states. Read one after another in the State Profiles, these expert opinions may at first appear be idiosyncratic or inconsistent. Most responses, however, fell into five broad categories, and there was manifest agreement about three strategies.

Thirteen respondents said market mechanisms were the best way to establish private and public sector relationships to develop K-12 networking. "It's got to be competitive marketing. We put out a request for proposal and force the competition to occur," said the New Jersey respondent. The Arizona respondent said, "We work cooperatively with local telecommunications providers to try to provide a larger market; that is, we leverage the larger market to lower costs."

Ten respondents said state officials should promote programs that serve the best interest of the state and public. The Montana respondent said, "The best way is to get all the schools together and speak with one voice, to be heard. Show [telecommunications providers] that we are one entity. Then they'll pay attention to us." The California respondent said, "Bring providers together and discuss education in California—define what we need so we can ask them what they'll do to address these needs. Inclusive collaborative relationships are necessary, not factional or piecemeal approaches, in keeping costs down so all students have access."

Ten respondents advocated centralized and coordinated state-led efforts. The Alaska respondent favored "...a coordinated effort through a statewide planning process, including the state department of education, the state, and the university." The Minnesota respondent said, "[The best way is] for the state to provide leadership in forming the business partnerships; collaboration between the Department of Children, Families, and Learning [Minnesota's state education agency] and the Department of Administration."

Eight respondents favored partnerships among state agencies, schools, telecommunications providers, and others. Consider the Virginia respondent's remark: "Through partnerships of local educators, state agencies, schools, community groups, and private enterprise, and through state initiative in implementing the [federal] *Telecommunications Act* and getting all parties together in partnership to carry it out."

Fewer respondents (6) said establishing cooperative efforts between school systems and telecommunications service providers was the best way to involve the private sector in building network infrastructure: "Face-to-face communication—education representatives and telecom management people sitting down together," the Nebraska respondent said.

A very small number of respondents offered opinions that do not fall into tidy categories. For example, the Maine respondent said, "Funds (e.g., the Public Utilities Commission ordered NYNEX to dedicate $20 million in equipment, rates, and services to public schools and libraries) and involvement of many different parties (advisory board, cable companies, service providers, etc.)." The Wisconsin respondent said the best way to encourage telecommunications providers to build networks was "through community-based involvements and exemption from revenue spending caps on technology."

A different set of informants—say, state governors or educators working in the schools or the private sector providers themselves—would no doubt have very different perspectives on these matters. Yet since the great majority of these respondents are state education agency staff who oversee or coordinate network development for public school systems, they bring dual expertise in policy development and technology that adds some weight to these remarks.

How Educators Get Training in Network Usage

Summary

School connectivity to the Internet and other telecommunications networks will be underutilized unless educators receive the training they need to use the network access they have. While many decisionmakers recognize this fact, they may have limited information about the availability of sources of telecommunications training and the topics covered in that training for educators. To answer a need for information, respondents described the availability of telecommunications training and the topics and sources of such training in their state in spring 1996.

Ratings regarding the availability of seven sources of telecommunications training for educators clustered in the moderate range, indicating that no single source of telecommunications training for educators was prevalent; a notable number of respondents also identified their state department of education as a source of telecommunications training for educators. The uniformly moderate availability ratings probably mean that respondents saw a need for more training resources if network implementation is to succeed.

Training in technical issues was available in every state, and training in integrating technology into the curriculum, often spoken of as curriculum integration, was available in every state but one, according to respondents' reports. Training in other topics was often available as well.

Most respondents gave relatively high importance ratings to seven general topics for telecommunications training for educators. Curriculum integration was given the highest importance rating by more than three-quarters of the respondents, indicating a crucial direction for policymakers to consider when formulating and funding telecommunications training programs for educators.

Availability Ratings of Select Sources of Telecommunications Training for Educators

Interviewees identified the extent to which several widely used sources of telecommunications training served educators in their states in spring 1996. Representing the public and the private sectors, these sources include regional education service centers, district administrative staff, providers that deliver training via distance learning technologies, consultants, vendors and product manufacturers, professional conferences, and higher education.

Respondents rated the extent of assistance provided by these sources of education telecommunications training based on a 7-point scale, with 1 representing "not at all" and 7 representing "to a great extent." Ratings varied so widely that only one pattern emerged in these data: ratings in all categories tended to fall in the moderate 3, 4, or 5 range.

For instance, more respondents attributed the same availability rating to higher education and professional conferences than other categories, indicating respondents' views of their relative value as training sources for educators. But this presents a good news/bad news situation. The good news is that 20 respondents rated higher education with a 5 and 19 respondents rated professional conferences with a 5. The bad news is that so many respondents rated both sources with a 5, implying only high-moderate availability. In themselves, these data seem to indicate that educators need more training resources for successful telecommunications implementation in schools.

When consensus occurred in respondents' ratings of other training sources, this theme of moderate availability was echoed. Consultants received availability ratings of 5 or 4 from one dozen respondents in each category. Eleven respondents gave a low-moderate rating of 3 to vendors.

There were, however, three exceptions to the uniformly moderate ratings:

- School district administrative staff received an availability rating of 7 from ten respondents, an expected rating that may reflect the ready access some teachers have to technologically savvy colleagues in their school district. The question remains, How many of these savvy colleagues are on staff and on call? Moreover, are skilled information technology specialists on staff in all districts? A study of school technology coordinators and their duties could reveal (1) if there are sufficient numbers of these specialists and (2) if their professional schedules allow them time to train other educators in network technology usage.

- Regional education service centers or other intermediate education agencies received an availability rating of 1 from 11 respondents, possibly because these centers are not built into the public education systems in several states. It should be pointed out that respondents from states that have regional education service centers—Texas, Nebraska, and New York come to mind—usually gave high availability ratings to such training. Interestingly enough, education service centers were the only category in which several respondents (12) entered "don't know" responses when rating training source availability. In comparison, fewer than two respondents provided "don't know" answers for every other training source. A national study of these centers and their role in technology training for educators might help policymakers better determine the value of these organizations in supporting K–12 school technology initiatives.
- Distance learning providers received a low availability rating of 2 or 1 from respondents in 17 states. These low ratings may cast more light on the comparatively low level of development of distance learning services in those states than on the comparative value of the programs. Respondents from Hawaii, Iowa, and Utah, for example—states with robust, mature distance learning programs—gave top ratings to distance learning providers.

In short, these moderate availability ratings may indicate that, while some telecommunications training for educators was available from a selection of providers in many states in spring 1996, there was a need for more. A detailed and current study of training sources might identify some worthwhile directions for educators' telecommunications training.

Other Sources of Telecommunications Training for Educators Identified by Respondents

Another important source of telecommunications training for educators was volunteered by respondents: 20 named their state department of education and other state education/educational technology agencies as a training source for educators. Only four respondents named other state and/or federal agencies, and few named foundations. Some responses were singular: a corporate partner, professional associations, personal contacts and colleagues, and school-based support were all mentioned.

It's possible that state education or educational technology agencies were stepping in with training for educators to compensate for the moderate availability of other training resources—another topic meriting further study. As an alternative, policymakers might benefit from a study of the roles and availability of all the training providers described by the respondents; they could then allocate funding earmarked for educators' training with greater confidence that the money was reaching the most appropriate training resources.

Topics Addressed in Telecommunications Training for Educators in Spring 1996

Those who develop technology training know that the subject matter of telecommunications training may be as important to successful usage of these technologies as is access. There was nearly universal agreement among interviewees on which topics were addressed in the telecommunications training available to educators in their state in spring 1996.

It's not surprising that all 51 respondents said training in technical issues was available to educators in their state. All but one said training was available in integrating telecommunications technologies into curricula. Ethical issues and professional productivity training were available to educators in nine out of ten states (i.e., 45 in each category), and education policy was addressed in 41 states, respondents reported. The topic of liability issues was addressed in 38 states, according to the respondents. Even though grant proposal writing was the least likely of seven topics offered in telecommunications training available to educators in spring 1996, it was addressed in two out of three or 33 states.

In 16 states, training was available in other telecommunications/education topics in spring 1996, according to respondents. Topics included technology in school improvement programs and network/telecommunications technology administration (three states each); developing Web sites and network administration, Internet training, technology planning, and telecommunications funding/resource procurement (two states each); and copyright laws and community access, and strategic planning (one state each).

Importance Ratings of Training Topics

Respondents rated the importance of several topics in telecommunications training for educators based on a 7-point scale, with 1 representing "not at all important" and 7 representing "very important." Ratings were scattered throughout the scale, although in several categories more than nine respondents gave the same importance rating to the same topic.

Importance ratings for training topics usually clustered at the higher end of the scale. In addition, more respondents provided more ratings at the high end of the scale for training topics than for any other subjects rated for the State Networking Report Survey. Considered together, these patterns indicate the importance respondents assigned to all these topics.

In fact, the topic of curriculum integration was in a class by itself in respondents' importance ratings. Four out of five or 40 respondents rated curriculum integration with a 7. Respondents from five additional states gave curriculum integration a rating of 6.

Ratings of 7 or 6 also occurred for ethical issues, from 34 or two-thirds of the respondents; for education policy, from 30 respondents; for professional productivity, from 27 or more than half the respondents; and for technical issues, from 26 or half the respondents. Sixteen respondents rated the topic of liability issues with a 7, while 13 respondents gave it a moderate rating of 5.

Compared to the other topics, grant proposal writing was given the overall lowest set of importance ratings. A total of 17 respondents rated grant writing with a 7 or a 6, although 14 interviewees awarded the topic a rating of 5. In light of the funding concerns voiced elsewhere by respondents, these ratings are especially interesting.

Respondents' ratings for the remaining rating/topic categories usually fell at the high end of the scale. All told, the frequency of high importance ratings seems to indicate that most respondents agree: these topics are all important and useful additions to telecommunications training for educators. Policymakers might consider the ratings as they support publicly financed training programs for educators as part of school networking initiatives.

Guidelines for Future Action: Other Patterns Found in the State Networking Report Survey

What factors should policymakers and others concerned with successful implementation of networked computing look for as they track development of K-12 networks? How can findings from the State Networking Report Survey help policymakers plan future development and implementation of telecommunications networks serving students, educators, and school administrators?

William R. Kelly, a sociologist at the University of Texas at Austin, analyzed key variables collected in the State Networking Report Survey and identified several patterns that policymakers may turn to during decisionmaking. To illuminate factors that tend to be related more or less to progress in K-12 network development, Kelly employed additional demographic data culled from the 1990 Census of the United States to spotlight economic factors that also may play a role in K-12 networking. His key findings are presented here, and his complete analysis is published as Appendix A.

Policymakers might keep in mind findings from this trend analysis as they weigh the merits and drawbacks of publicly funded programs promoting network development and implementation in schools. At the same time, they should not view these patterns and relationships as causal or correlative to any degree. These findings are exploratory only and demand further study.

Demographic and Economic Factors

The State Networking Report has previously presented evidence that urban school districts were more likely than rural school districts to have local dial-up or dedicated access in spring 1996; urban districts were also more likely than rural districts to have had increases in the total percentage of districts with network access from spring 1995 to spring 1996. The trend analysis echoes these themes by finding that states with a greater percentage of the population living in urban areas tended to have enhanced local dial-up, toll-free dial-up, and dedicated access and more K-12 educators with network access. Such states also tended to have private sector telecommunications providers establishing programs for infrastructure development. Considered together, these patterns indicate that a comparatively high degree of urbanity may be related to progress in network development. Does this mean, however, that policymakers from rural states with one or two small cities face a disadvantage in public network development? Additional research is recommended.

Funding Sources

The report has previously identified a pattern showing that, typically, at least 50 percent of network development funding comes from state government. This factor is related to several findings of the trend analysis; in all cases, further study is warranted.

- States with higher per capita income tended to have enhanced local dial-up/toll-free dial-up/dedicated access; increases in the percentage of districts with local dial-up and toll-free dial-up access; more K–12 educators who *had* network access; and increases over the previous year in implementation of a telecommunications plan. It's probable that, due to state income and business taxes and other sources of state government revenue, such states simply had more money available for financing education technology projects. Their comparative wealth enabled policymakers to allocate more funds to bringing technology—including networks—to public education. But this tautology gives rise to lingering concerns about states with limited revenues: how can such states finance education networking so technology access is available—universally and equitably?
- States with greater funding from state government tended to have higher percentages of implementation of plans and more districts with toll-free dial-up and dedicated access. More importantly, such states tended to have more educators who *had* and more educators who *used* state-supported/-subsidized network access and more students who *had* and more students who *used* state-supported/-subsidized network access.

This is the only finding in which the cluster of four teacher/student access/usage factors occurs. It suggests that greater funding from state government may well signal a widely held commitment among state officials to bring technology to schools. Another study might investigate whether such states also maintained robust state-supported training programs in network usage for educators, a factor clearly related to usage of network technologies in public schools.

- States with greater funding from government (local, state, and federal) tended to have slightly higher levels of implementation of telecommunications plans and higher percentages of districts with local dial-up and dedicated access, along with an increase in the percentage of districts with dedicated access. Such states also tended to have enhanced state-supported/-subsidized access with more K-12 educators who *used* access and more K-12 students who *had* and *used* access. Again, several factors that are seemingly linked to progress in network development appear here, offering further evidence of the pivotal role government can play in promoting network development.

Interestingly enough, states with greater funding from the private sector tended to have somewhat enhanced network access and, as one would expect, private sector telecommunications providers establishing programs for infrastructure development. But they also tended to have more K-12 educators who *had* and *used* network access and more K-12 students who *used* network access. It is not surprising that such states tended to have higher percentages of schools with World Wide Web sites as well—possibly as an outcome of the comparatively high usage of network technologies in public education. Yet the role of greater private sector funding in this constellation of factors is murky at best. This finding should be tested with further study.

Telecommunications Tariffs for Education

The federal *Telecommunications Act of 1996* stipulated that public schools and libraries will receive discounts for telecommunications services. While the act will soon mandate such discounts nationally, there were several states whose public utility/public service commissions had enacted special tariffs for K-12 schools in spring 1996.

Are special tariffs a factor related to progress in telecommunications network development and usage in public education? The trend analysis appears to indicate that they are. States that had such special telecommunications tariffs for education in place by spring 1996 tended to have higher percentages of districts with local dial-up, toll-free dial-up, and dedicated access and increases in the percentages of districts with local dial-up and toll-free dial-up access. They also had more K-12 educators who *had* network access and more K-12 students who *used* network services. In short, there was evidence that special tariffs are another factor related to progress in network development and usage.

This relationship will remain unproved until the discounts mandated by the *Telecommunications Act of 1996* have been in use nationwide for a lengthy period of time. Surely policymakers concerned with educational technology will continue tracking these discounts and their impact on K-12 schools.

Training Assistance for K-12 Networks

It is already evident that adequate training is necessary for successful network implementation; indeed, respondents to the State Networking Report Survey also indicated a need for more training resources than were available to educators in spring 1996 as a component of successful network development.

The trend analysis verifies these themes. It demonstrates that states that had greater overall training assistance tended to have a higher percentage of districts with toll-free dial-up access and increases in the percentage of districts with toll-free dial-up and dedicated access. States in this group also tended to have more K-12 educators who *had* access and more K-12 students who *had* and *used* network access.

This prompts the question, Is even wider availability of training sources essential for more K-12 educators to use network access? While the answer may appear to be an obvious yes, the mere creation of additional training resources probably is not a panacea that will instantly cure the ills of inadequate network usage by educators with access; as mentioned previously, other conditions must be present before educators can use network access to greatest benefit. After training sessions, teachers need sufficient practice time so they can experiment with telecomputing tools. They need adequate equipment—in the form of computers reserved for faculty use—where they can practice these skills without having to compete with colleagues or students for a network-connected machine. Other questions arise: Is training more effective when delivered in a single, intensive day or in shorter increments over several weeks or months? If gradual, incremental training is more effective, how can educators who work in remote or geographically isolated school districts receive such training without hardship?

Some have argued that universities are in the best position to deliver telecommunications training to teachers. The trend analysis indicated that states with greater training assistance provided by higher education also had an increase in the percentage of districts with toll-free dial-up network access and more K–12 educators who *had* access. Yet such states did not have more educators who *used* network services. Nor were there other indicators of progress associated with such states.

Clearly, more research is needed to determine the precise role that specific training sources should play in telecommunications training and which sources are most effective for delivering telecommunications training to the greatest number of teachers.

Endnotes

1. This quote is taken from the executive summary of the *1997 SPA Education Market Report*, an annual publication that summarizes new research and reports on educational technology. Software Publishers Association, Education Section. (1997). *1997 SPA education market report*. Washington, DC: Author, 9–10.

2. This anecdotal evidence was observed by K. Victoria Dimock, a researcher at the Southwest Educational Development Laboratory who is currently completing a three-year Teacher Networking Project studying network implementation in several rural Arkansas schools. Dimock found that providing a network computer reserved for faculty use was essential for successful technology adoption and instructional integration by classroom teachers. Dimock, K. V. (Personal interview, October 5, 1996). Some of her findings were reported in Dimock, K. V. (1996, November). "Lessons in professional development: What educators should know when technology comes to school." *SEDLetter*, IX, 4, 7–9.

3. Other studies examine equity of access in schools in terms of the comparative wealth of school districts as indicated by family income levels and/or identification of students' race and ethnicity. Designers of this study chose to examine rural and urban school districts to gain insight into a different facet of equity issues.

4. Definitions of bits, bytes, kilobytes, and megabytes are loosely based on definitions appearing in *Illustrated computer dictionary for dummies*. Gookin, D., Wang, W., & Van Buren, C. (1993). *Illustrated computer dictionary for dummies*. Foster City, CA: IDG Books Worldwide, Inc.

5. Murphy, A. (Telephone interview, March 10, 1997). Located in San Francisco, NetDay96 serves as a national clearinghouse and resource for NetDay activities and planning. Murphy is a spokesperson for the organization.

6. Davis School District Educational Technology Center. (n.d.). "Transfer speeds" from *Internet terms*. [On-line]. Available: http://www.davis.k-12.ut.us/etc/WEBTERMS.HTM#T. The table and note are in an "Internet Terms" glossary posted on the World Wide Web site posted by the school district in Farmington, Utah. The table and note are reproduced verbatim from the site.

7. One of these states, Missouri, was documented as being "in the second year of a three-year plan…to connect schools to the Internet" in Appendix C of *Getting America's Students Ready for the 21st Century*, a 1996 report produced by the U.S. Department of Education. The same report documented the second state, New Hampshire, as not having a plan in place but being in the preplanning phase: "A technology committee…is currently defining guidelines for local development of technology plans." U.S. Department of Education. (1996, June). *Getting America's students ready for the 21st century: Meeting the technology literacy challenge*. Washington, DC: Government Printing Office, 64–65.

8. Southwest Educational Development Laboratory. (1995, March). *Networks for Goals 2000 reform: Bringing the Internet to K–12 schools, July 25–September 31, 1994*. Southwest Educational Development Laboratory and the Texas Education Network. Austin, TX: Southwest Educational Development Laboratory, 10.

9. It is curious that not a single respondent named as private sector partners America OnLine, CompuServe, or Prodigy, perhaps the most widely known providers of Internet services in spring 1996.

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III. State Profiles

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A Demographics

Number of school districts
127

Number of school buildings
1,300

Number of K-12 teachers currently employed
45,000

Number of K-12 students currently enrolled
740,000

Number of students in district with largest enrollment
63,000

Number of students in district with smallest enrollment
400

Number of districts with fewer than 1,000 students
40

For Further Information

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All information current in spring 1996

B Implementation of Telecommunications Plan

State has a long-range telecommunications plan for K-12 education
No

If not, state is developing one
Yes

Existing K-12 plan is part of a larger, statewide plan
NA

Percentage of existing K-12 plan currently completed
NA

Percentage of existing K-12 plan completed one year ago
NA

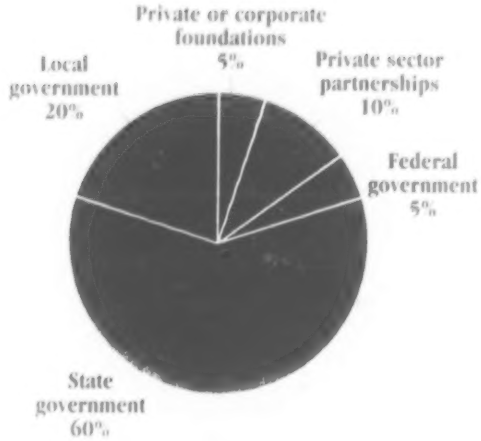
State is planning a NetDay to wire schools for Internet access
Yes

C Current Funding Sources for Network Development

Sources of funding currently available for the development of telecommunications infrastructure for education
all that apply marked bold
Local government
State government
Federal government
Private sector partnerships
Private or corporate foundations

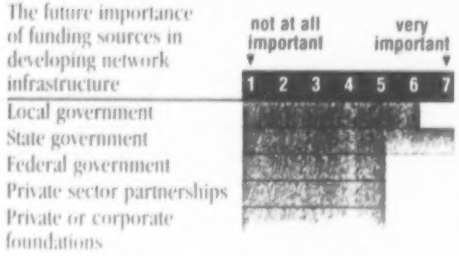
Other current sources of funding
No

Funding sources and the percentage of funding from those sources used to develop infrastructure of existing educational telecommunications network
presented as a pie chart below

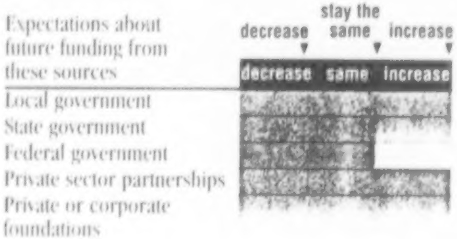

Funding Proportions from Sources

D Importance of Funding Sources and Future Expectations

The future importance of funding sources in developing network infrastructure

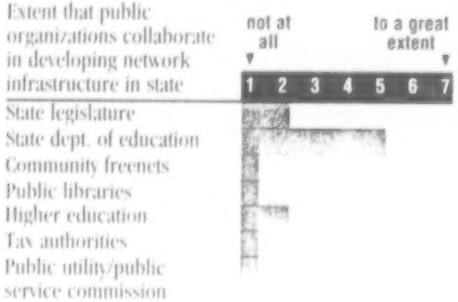


Expectations about future funding from these sources



E Government Collaboration in Infrastructure Development

Extent that public organizations collaborate in developing network infrastructure in state



The state's public utility/public service commission has established special tariffs for K-12 education
Yes

The significance of such tariffs for networking efforts for K-12 education
Very significant

The impact the federal *Telecommunications Act of 1996* will have on state's network development
Positive impact

F Private Sector Collaboration in K-12 Network Development

Major telecommunications providers have established a program in the state to encourage network infrastructure building
Yes

Specific providers
BellSouth Corporation

Parties that provided the incentives for establishing this program
BellSouth

Significance of such programs for networking efforts
Somewhat significant

Best way to establish relationships with telecommunications providers to develop state's telecommunications network infrastructure
"Everybody (public service commission, providers of telephone and cable, legislatures, state and local agencies for schools both K-12 and higher ed) should make decisions in best interest of state and not as individual pieces of puzzle."

*"Don't know" response recorded

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G Current Status of Network Development and Use Statewide

Percent of school districts in state with local dial-up access
75%

Percent of school districts in state with toll-free dial-up access
75%

Percent of school districts in state with dedicated access
10%

Percent of schools in state with a Web site
20%

Percent of K-12 educators who have state-provided or subsidized access to telecommunications networks
25%

Percent of K-12 educators who use these services
25%

Percent of K-12 students who have state-provided or subsidized access to telecommunications networks
25%

Percent of K-12 students who use these services
*****

The state education network provides dial-up network access
Yes

How dial-up access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

The state education network provides dedicated network access
Yes

How dedicated access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

Current network development efforts in state are primarily directed at providing
response marked bold
Dial-up access
Dedicated access
Both dial-up and dedicated access

*"Don't know" response recorded

H Network Access 1995 and 1996 and Projected Access 1997

Type of Access	1995	1996	1997
All School Districts in State			
Percent of local dial-up	40%	50%	60%
Percent of toll-free dial-up	50%	75%	90%
Percent of dedicated access	5%	10%	25%
Urban-Only Districts			
Percent of local dial-up	50%	75%	90%
Percent of toll-free dial-up	50%	75%	90%
Percent of dedicated access	5%	10%	25%
Rural-Only Districts			
Percent of local dial-up	50%	75%	90%
Percent of toll-free dial-up	50%	75%	90%
Percent of dedicated access	5%	10%	25%

Percentages of state's school districts and the network access they used in spring 1995 and spring 1996 and projections for spring 1997

I State Initiatives Promoting Network Use

State has an initiative to integrate Web resources into state curriculum frameworks
No

State's education agency would consider adopting Web resources as textbooks
*****

State has a safety-net initiative to provide underserved K-12 populations with Internet connectivity
Yes

State education agency currently has a Web site at
http://www.alsde.edu/

J State's Information Service Providers in the Public Sector

Sources in state that provide information services on public networks
all that apply marked bold
State legislature
Public utility/public service commission*
State dept. of education
Community freenets*
Public libraries
Higher education
Tax authorities

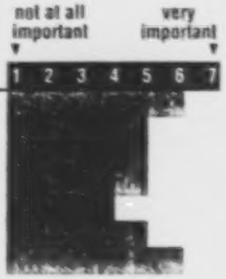
Other sources of public information networks
No

K Telecommunications Training Topics and Their Importance

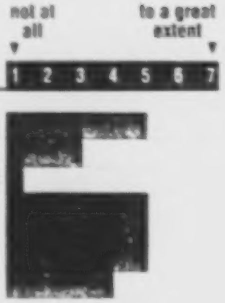
Topics currently addressed in education telecommunications training offered in the state
all that apply marked bold
Technical issues
Ethical issues
Liability issues
Education policy
Professional productivity
Curriculum integration
Grant writing

Other topics addressed in training
No

The importance of topics addressed in education telecommunications training offered in the state



The extent to which the following sources currently provide training services to assist the state with telecommunications implementation



Other sources of training
No

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A Demographics

Number of school districts
53

Number of school buildings
*****

Number of K-12 teachers currently employed
7,217

Number of K-12 students currently enrolled
125,340

Number of students in district with largest enrollment
49,000

Number of students in district with smallest enrollment
20

Number of districts with fewer than 1,000 students
41

For Further Information

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907-465-2802 (phone)

All information current in spring 1996

B Implementation of Telecommunications Plan

State has a long-range telecommunications plan for K-12 education
No

If not, state is developing one
Yes

Existing K-12 plan is part of a larger, statewide plan
NA

Percentage of existing K-12 plan currently completed
NA

Percentage of existing K-12 plan completed one year ago
NA

State is planning a NetDay to wire schools for Internet access
No

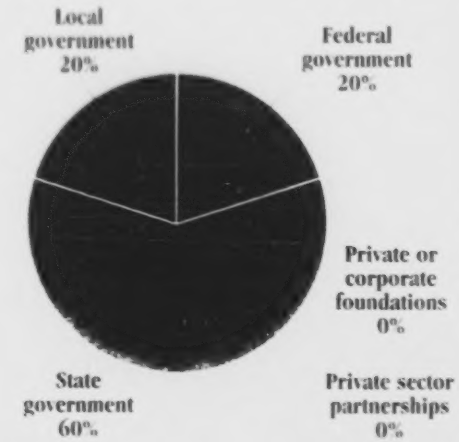
C Current Funding Sources for Network Development

Sources of funding currently available for the development of telecommunications infrastructure for education
all that apply marked bold
Local government
State government
Federal government
Private sector partnerships
Private or corporate foundations

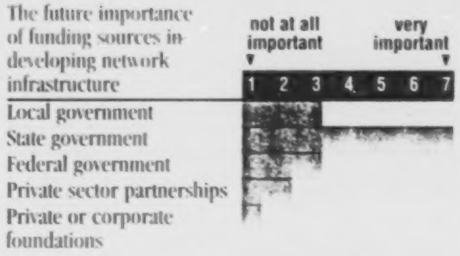
Other current sources of funding
No

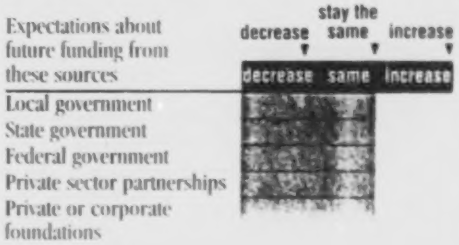
Funding sources and the percentage of funding from those sources used to develop infrastructure of existing educational telecommunications network
presented as a pie chart below

Funding Proportions from Sources

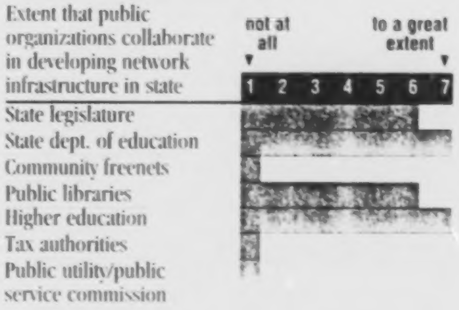


D Importance of Funding Sources and Future Expectations





E Government Collaboration in Infrastructure Development



The state's public utility/public service commission has established special tariffs for K-12 education
No

The significance of such tariffs for networking efforts for K-12 education
Very significant

The impact the federal *Telecommunications Act of 1996* will have on state's network development
Positive impact

F Private Sector Collaboration in K-12 Network Development

Major telecommunications providers have established a program in the state to encourage network infrastructure building
No

Significance of such programs for networking efforts
Not too significant

Best way to establish relationships with telecommunications providers to develop state's telecommunications network infrastructure
"The best way to establish relationships with telecommunications providers is through a coordinated effort through a statewide planning process, including the state department of education, the state, and the university."

*"Don't know" response recorded

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G Current Status of Network Development and Use Statewide

Percent of school districts in state with local dial-up access
43%

Percent of school districts in state with toll-free dial-up access
45%

Percent of school districts in state with dedicated access
11%

Percent of schools in state with a Web site
7%

Percent of K-12 educators who have state-provided or subsidized access to telecommunications networks
75%

Percent of K-12 educators who use these services
40%

Percent of K-12 students who have state-provided or subsidized access to telecommunications networks
70%

Percent of K-12 students who use these services
*****

The state education network provides dial-up network access
Yes
"Through the University of Alaska computer network."

How dial-up access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

The state education network provides dedicated network access
Yes
"Through the University of Alaska computer network."

How dedicated access is used
all that apply marked bold
Administrative functions at the district level*
Administrative functions at the campus level*
Classroom instruction
Student resource

Current network development efforts in state are primarily directed at providing
response marked bold
Dial-up access
Dedicated access
Both dial-up and dedicated access

**"Don't know" response recorded*

H Network Access 1995 and 1996 and Projected Access 1997

Type of Access	1995	1996	1997
All School Districts in State			
Percent of local dial-up	43%	43%	*
Percent of toll-free dial-up	45%	45%	*
Percent of dedicated access	11%	11%	*
Urban-Only Districts			
Percent of local dial-up	100%	100%	100%
Percent of toll-free dial-up	100%	100%	100%
Percent of dedicated access	100%	100%	100%
Rural-Only Districts			
Percent of local dial-up	40%	45%	50%
Percent of toll-free dial-up	0%	0%	0%
Percent of dedicated access	1%	1%	*

Percentages of state's school districts and the network access they used in spring 1995 and spring 1996 and projections for spring 1997

I State Initiatives Promoting Network Use

State has an initiative to integrate Web resources into state curriculum frameworks
No

State's education agency would consider adopting Web resources as textbooks
No

State has a safety-net initiative to provide underserved K-12 populations with Internet connectivity
Yes

State education agency currently has a Web site at
http://www.educ.state.ak.us/
or
http://www.alaska.state.us

J State's Information Service Providers in the Public Sector

Sources in state that provide information services on public networks
all that apply marked bold
State legislature
Public utility/public service commission
State dept. of education
Community freenets
Public libraries
Higher education
Tax authorities

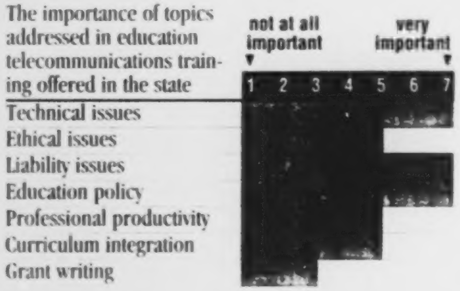
Other sources of public information networks
No

K Telecommunications Training Topics and Their Importance

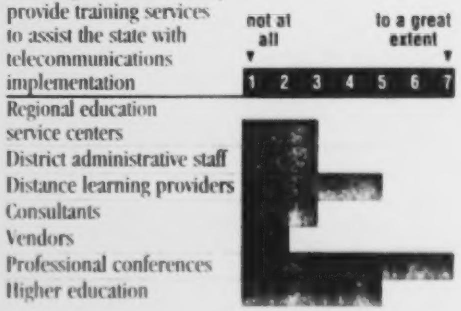
Topics currently addressed in education telecommunications training offered in the state
all that apply marked bold
Technical issues
Ethical issues
Liability issues*
Education policy
Professional productivity
Curriculum integration
Grant writing

Other topics addressed in training
No

The importance of topics addressed in education telecommunications training offered in the state



The extent to which the following sources currently provide training services to assist the state with telecommunications implementation



Other sources of training
No

Arizona

A Demographics

Number of school districts
220

Number of school buildings
1,300

Number of K-12 teachers currently employed
40,000

Number of K-12 students currently enrolled
800,000

Number of students in district with largest enrollment
60,000

Number of students in district with smallest enrollment
12

Number of districts with fewer than 1,000 students
66

For Further Information

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602-542-2560 (fax)

All information current in spring 1996

B Implementation of Telecommunications Plan

State has a long-range telecommunications plan for K-12 education
No

If not, state is developing one
Yes

Existing K-12 plan is part of a larger, statewide plan
NA

Percentage of existing K-12 plan currently completed
NA

Percentage of existing K-12 plan completed one year ago
NA

State is planning a NetDay to wire schools for Internet access
No

C Current Funding Sources for Network Development

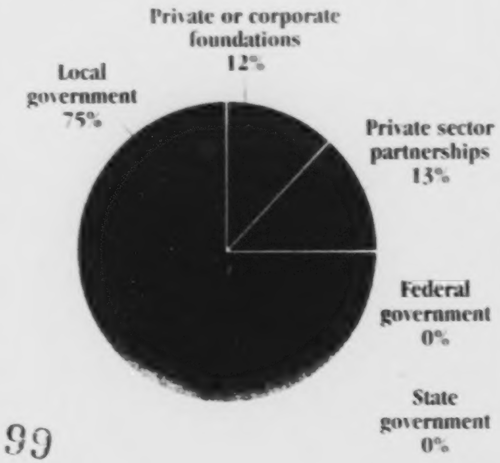
Sources of funding currently available for the development of telecommunications infrastructure for education
all that apply marked bold

Local government
State government
Federal government
Private sector partnerships
Private or corporate foundations

Other current sources of funding
No

Funding sources and the percentage of funding from those sources used to develop infrastructure of existing educational telecommunications network
presented as a pie chart below

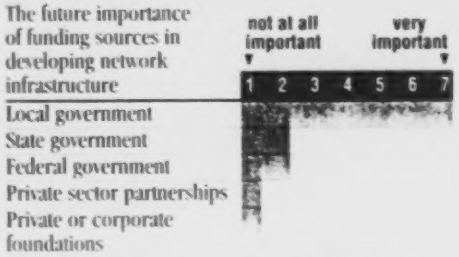
Funding Proportions from Sources



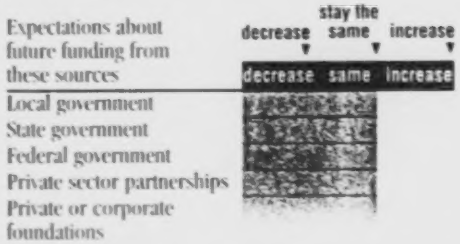
99

D Importance of Funding Sources and Future Expectations

The future importance of funding sources in developing network infrastructure

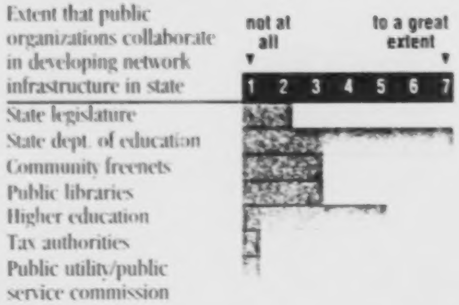


Expectations about future funding from these sources



E Government Collaboration in Infrastructure Development

Extent that public organizations collaborate in developing network infrastructure in state



The state's public utility/public service commission has established special tariffs for K-12 education
No

The significance of such tariffs for networking efforts for K-12 education
Not at all significant

The impact the federal *Telecommunications Act of 1996* will have on state's network development
Positive impact

F Private Sector Collaboration in K-12 Network Development

Major telecommunications providers have established a program in the state to encourage network infrastructure building
No

Significance of such programs for networking efforts
Not at all significant

Best way to establish relationships with telecommunications providers to develop state's telecommunications network infrastructure
"We work cooperatively with local telecommunications providers to try to provide a larger market; that is, we leverage the larger market to lower costs."

100

*"Don't know" response recorded

G Current Status of Network Development and Use Statewide

Percent of school districts in state with local dial-up access
75%

Percent of school districts in state with toll-free dial-up access
0%

Percent of school districts in state with dedicated access
35%

Percent of schools in state with a Web site
33%

Percent of K-12 educators who have state provided or subsidized access to telecommunications networks
8%

Percent of K-12 educators who use these services
8%

Percent of K-12 students who have state-provided or subsidized access to telecommunications networks
0%

Percent of K-12 students who use these services
0%

The state education network provides dial-up network access
Yes

How dial-up access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

The state education network provides dedicated network access
"Yes and no—those who want to connect pay for it."

How dedicated access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

Current network development efforts in state are primarily directed at providing
response marked bold
Dial-up access
Dedicated access
Both dial-up and dedicated access

H Network Access 1995 and 1996 and Projected Access 1997

Type of Access	1995	1996	1997
All School Districts in State			
Percent of local dial-up	40%	50%	60%
Percent of toll-free dial-up	0%	0%	0%
Percent of dedicated access	15%	35%	65%
Urban-Only Districts			
Percent of local dial-up	50%	100%	100%
Percent of toll-free dial-up	0%	0%	0%
Percent of dedicated access	40%	50%	70%
Rural-Only Districts			
Percent of local dial-up	0%	65%	75%
Percent of toll-free dial-up	0%	0%	0%
Percent of dedicated access	20%	30%	50%

Percentages of state's school districts and the network access they used in spring 1995 and spring 1996 and projections for spring 1997

I State Initiatives Promoting Network Use

State has an initiative to integrate Web resources into state curriculum frameworks
No

State's education agency would consider adopting Web resources as textbooks
NA

State has a safety-net initiative to provide underserved K-12 populations with Internet connectivity
Yes

State education agency currently has a Web site at
http://www.ade.state.az.us

J State's Information Service Providers in the Public Sector

Sources in state that provide information services on public networks
all that apply marked bold
State legislature
Public utility/public service commission
State dept. of education
Community freenets
Public libraries
Higher education
Tax authorities*

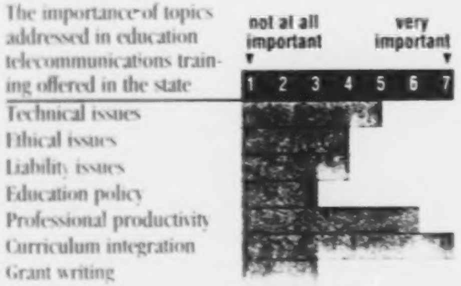
Other sources of public information networks
Other Arizona state agencies, Border Commission, assorted high-tech and organizational groups

K Telecommunications Training Topics and Their Importance

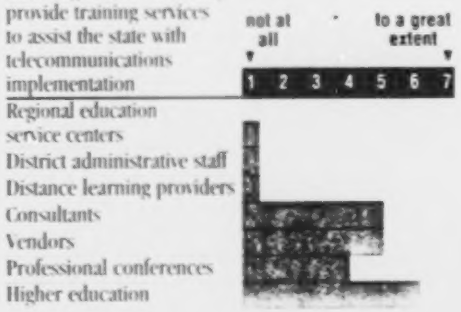
Topics currently addressed in education telecommunications training offered in the state
all that apply marked bold
Technical issues
Ethical issues
Liability issues*
Education policy
Professional productivity
Curriculum integration
Grant writing

Other topics addressed in training
No

The importance of topics addressed in education telecommunications training offered in the state



The extent to which the following sources currently provide training services to assist the state with telecommunications implementation



Other sources of training
Arizona department of education

---

*"Don't know" response recorded

Arkansas

A Demographics

Number of school districts
311

Number of school buildings
1,100

Number of K-12 teachers currently employed
28,000

Number of K-12 students currently enrolled
450,000

Number of students in district with largest enrollment
26,000

Number of students in district with smallest enrollment
98

Number of districts with fewer than 1,000 students
206

For Further Information

Bob Friedman
Director
Arkansas Public School Computer Network
101 East Capitol Ave.
Suite 101
Little Rock, AR 72201
bobf@apscn.k12.ar.us
501-682-4985 (phone)
501-682-5035 (fax)

All information current in spring 1996

B Implementation of Telecommunications Plan

State has a long-range telecommunications plan for K-12 education
No

If not, state is developing one
Yes

Existing K-12 plan is part of a larger, statewide plan
NA

Percentage of existing K-12 plan currently completed
NA

Percentage of existing K-12 plan completed one year ago
NA

State is planning a NetDay to wire schools for Internet access
No

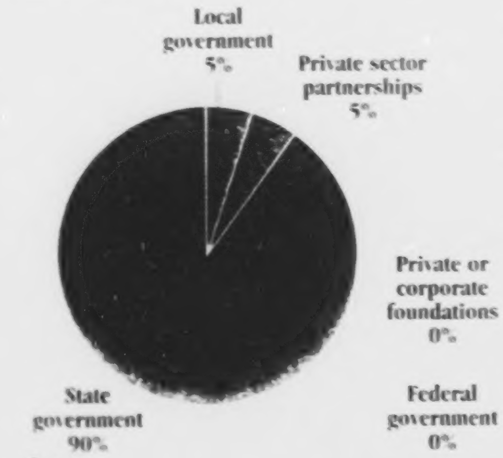
C Current Funding Sources for Network Development

Sources of funding currently available for the development of telecommunications infrastructure for education
all that apply marked bold
Local government
State government
Federal government
Private sector partnerships
Private or corporate foundations

Other current sources of funding
No

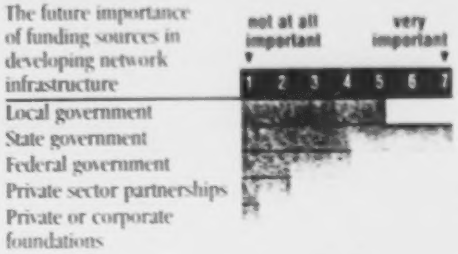
Funding sources and the percentage of funding from those sources used to develop infrastructure of existing educational telecommunications network
presented as a pie chart below

Funding Proportions from Sources

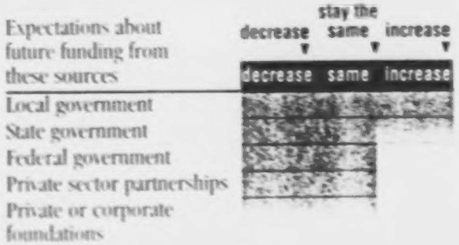


D Importance of Funding Sources and Future Expectations

The future importance of funding sources in developing network infrastructure

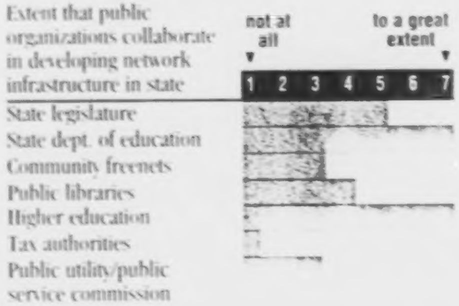


Expectations about future funding from these sources



E Government Collaboration in Infrastructure Development

Extent that public organizations collaborate in developing network infrastructure in state



The state's public utility/public service commission has established special tariffs for K-12 education
Yes

The significance of such tariffs for networking efforts for K-12 education
Very significant

The impact the federal *Telecommunications Act of 1996* will have on state's network development
*****

F Private Sector Collaboration in K-12 Network Development

Major telecommunications providers have established a program in the state to encourage network infrastructure building
No

Significance of such programs for networking efforts
Not at all significant

Best way to establish relationships with telecommunications providers to develop state's telecommunications network infrastructure
"Through cooperative projects with focus on infrastructure planning."

* *"Don't know" response recorded*

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G Current Status of Network Development and Use Statewide

Percent of school districts in state with local dial-up access
10%

Percent of school districts in state with toll-free dial-up access
0%

Percent of school districts in state with dedicated access
74%

Percent of schools in state with a Web site
10%

Percent of K-12 educators who have state-provided or subsidized access to telecommunications networks
75%

Percent of K-12 educators who use these services
33%

Percent of K-12 students who have state-provided or subsidized access to telecommunications networks
75%

Percent of K-12 students who use these services
50%

The state education network provides dial-up network access
No

The state education network provides dedicated network access
Yes

How dedicated access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

Current network development efforts in state are primarily directed at providing
response marked bold
Dial-up access
Dedicated access
Both dial-up and dedicated access

H Network Access 1995 and 1996 and Projected Access 1997

Type of Access	1995	1996	1997
All School Districts in State			
Percent of local dial-up	5%	10%	15%
Percent of toll-free dial-up	0%	0%	0%
Percent of dedicated access	44%	74%	100%
Urban-Only Districts			
Percent of local dial-up	*	*	*
Percent of toll-free dial-up	0%	0%	0%
Percent of dedicated access	75%	100%	100%
Rural-Only Districts			
Percent of local dial-up	*	*	*
Percent of toll-free dial-up	0%	0%	0%
Percent of dedicated access	44%	74%	100%

Percentages of state's school districts and the network access they used in spring 1995 and spring 1996 and projections for spring 1997

I State Initiatives Promoting Network Use

State has an initiative to integrate Web resources into state curriculum frameworks
*

State's education agency would consider adopting Web resources as textbooks
*

State has a safety-net initiative to provide underserved K-12 populations with Internet connectivity
No

State education agency currently has a Web site at
http://arkedu.k12.ar.us/

J State's Information Service Providers in the Public Sector

Sources in state that provide information services on public networks
all that apply marked bold
State legislature
Public utility/public service commission
State dept. of education
Community freenets
Public libraries
Higher education
Tax authorities*

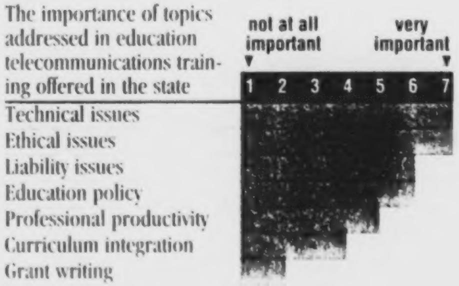
Other sources of public information networks
Arkansas Department of Computer Services

K Telecommunications Training Topics and Their Importance

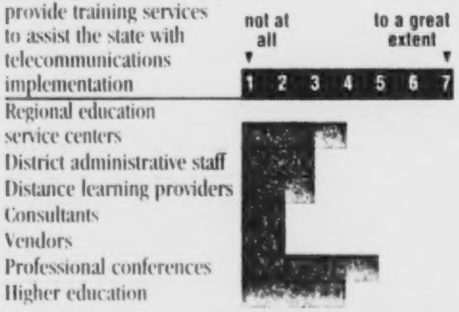
Topics currently addressed in education telecommunications training offered in the state
all that apply marked bold
Technical issues
Ethical issues
Liability issues
Education policy
Professional productivity
Curriculum integration
Grant writing

Other topics addressed in training
Developing curriculum, developing Web sites and home pages, network administration

The importance of topics addressed in education telecommunications training offered in the state



The extent to which the following sources currently provide training services to assist the state with telecommunications implementation



Other sources of training
Arkansas department of education

---

*"Don't know" response recorded

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California

A Demographics

Number of school districts
*

Number of school buildings
7,818

Number of K-12 teachers currently employed
214,000

Number of K-12 students currently enrolled
5,400,000

Number of students in district with largest enrollment
630,000

Number of students in district with smallest enrollment
*

Number of districts with fewer than 1,000 students
*

For Further Information

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Sacramento, CA 95814
cteach@goldmine.cde.ca.gov
916-654-9662 (phone)
916-657-3707 (fax)

All information current in spring 1996

B Implementation of Telecommunications Plan

State has a long-range telecommunications plan for K-12 education
No

If not, state is developing one
Yes

Existing K-12 plan is part of a larger, statewide plan
NA

Percentage of existing K-12 plan currently completed
NA

Percentage of existing K-12 plan completed one year ago
NA

State is planning a NetDay to wire schools for Internet access
Yes
Net Day originated in California on March 9, 1996.
–Eds.

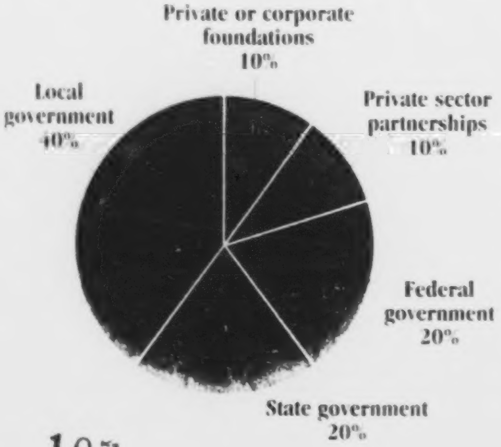
C Current Funding Sources for Network Development

Sources of funding currently available for the development of telecommunications infrastructure for education
all that apply marked bold
Local government
State government
Federal government
Private sector partnerships
Private or corporate foundations

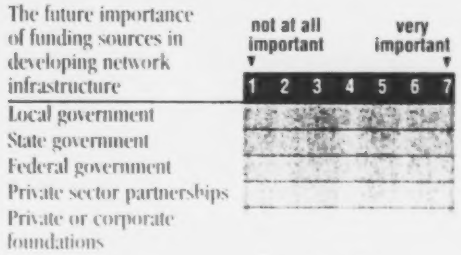
Other current sources of funding
No

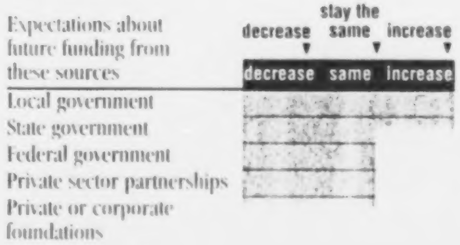
Funding sources and the percentage of funding from those sources used to develop infrastructure of existing educational telecommunications network
presented as a pie chart below

Funding Proportions from Sources

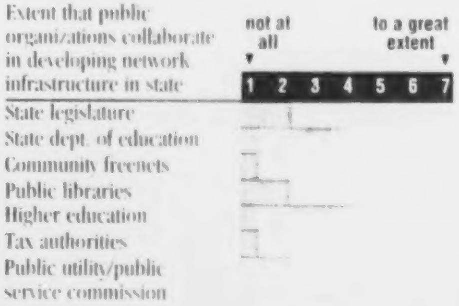


D Importance of Funding Sources and Future Expectations





E Government Collaboration in Infrastructure Development



The state's public utility/public service commission has established special tariffs for K-12 education
No

The significance of such tariffs for networking efforts for K-12 education
Very significant

The impact the federal *Telecommunications Act of 1996* will have on state's network development
Positive impact

F Private Sector Collaboration in K-12 Network Development

Major telecommunications providers have established a program in the state to encourage network infrastructure building
Yes

Specific providers
Pacific Bell

Parties that provided the incentives for establishing this program
Pacific Bell

Significance of such programs for networking efforts
Very significant

Best way to establish relationships with telecommunications providers to develop state's telecommunications network infrastructure
"Bring providers together and discuss education in California—define what we need so we can ask them what they'll do to address these needs. Inclusive collaborative relationships are necessary, not factional or piecemeal approaches, in keeping costs down so all students have access."

---

* "Don't know" response recorded

G Current Status of Network Development and Use Statewide

Percent of school districts in state with local dial-up access
*

Percent of school districts in state with toll-free dial-up access
*

Percent of school districts in state with dedicated access
15%

Percent of schools in state with a Web site
30%

Percent of K-12 educators who have state-provided or subsidized access to telecommunications networks
*

Percent of K-12 educators who use these services
*

Percent of K-12 students who have state-provided or subsidized access to telecommunications networks
*

Percent of K-12 students who use these services
*

The state education network provides dial-up network access
No

"The California Department of Education does not have a separate network from the Internet. California is organized regionally by county; access for districts and schools is very decentralized."

The state education network provides dedicated network access
*

Current network development efforts in state are primarily directed at providing
response marked bold
Dial-up access
Dedicated access
Both dial-up and dedicated access

H Network Access 1995 and 1996 and Projected Access 1997

Type of Access	1995	1996	1997
All School Districts in State			
Percent of local dial-up	30%	50%	75%
Percent of toll-free dial-up	*	*	*
Percent of dedicated access	*	15%	35%
Urban-Only Districts			
Percent of local dial-up	*	*	*
Percent of toll-free dial-up	*	*	*
Percent of dedicated access	*	*	*
Rural-Only Districts			
Percent of local dial-up	*	*	*
Percent of toll-free dial-up	*	*	*
Percent of dedicated access	*	*	*

Percentages of state's school districts and the network access they used in spring 1995 and spring 1996 and projections for spring 1997

I State Initiatives Promoting Network Use

State has an initiative to integrate Web resources into state curriculum frameworks
Yes

State's education agency would consider adopting Web resources as textbooks
*

State has a safety-net initiative to provide underserved K-12 populations with Internet connectivity
No

State education agency currently has a Web site at
http://goldmine.cde.ca.gov./

J State's Information Service Providers in the Public Sector

Sources in state that provide information services on public networks
all that apply marked bold
State legislature
Public utility/public service commission*
State dept. of education
Community freenets
Public libraries
Higher education
Tax authorities

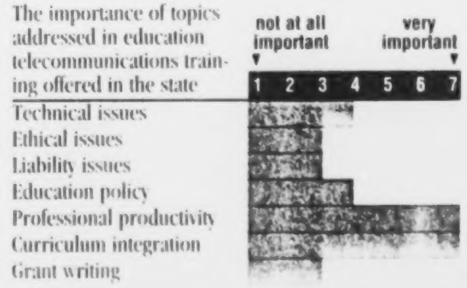
Other sources of public information networks
California state government, Governor's Office, State Library, other state agencies

K Telecommunications Training Topics and Their Importance

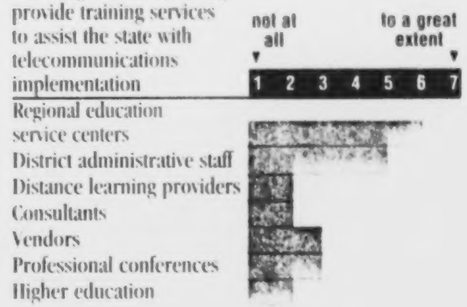
Topics currently addressed in education telecommunications training offered in the state
all that apply marked bold
Technical issues
Ethical issues
Liability issues
Education policy
Professional productivity
Curriculum integration
Grant writing

Other topics addressed in training
No

The importance of topics addressed in education telecommunications training offered in the state



The extent to which the following sources currently provide training services to assist the state with telecommunications implementation



Other sources of training
State department of education, California State Program Telemation

*"Don't know" response recorded

Colorado

A Demographics

Number of school districts
176

Number of school buildings
1,402

Number of K-12 teachers currently employed
34,894

Number of K-12 students currently enrolled
650,000

Number of students in district with largest enrollment
84,000

Number of students in district with smallest enrollment
54

Number of districts with fewer than 1,000 students
110

For Further Information

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Director of Educational Telecommunications
Colorado Dept. of Education
201 East Culfax, Room 209
Denver, Colorado 80203
efeder@csn.net
303-866-6859 (phone)
303-830-0793 (fax)

All information current in spring 1996

B Implementation of Telecommunications Plan

State has a long-range telecommunications plan for K-12 education
No

If not, state is developing one
Yes

Existing K-12 plan is part of a larger, statewide plan
NA

Percentage of existing K-12 plan currently completed
NA

Percentage of existing K-12 plan completed one year ago
NA

State is planning a NetDay to wire schools for Internet access
Yes

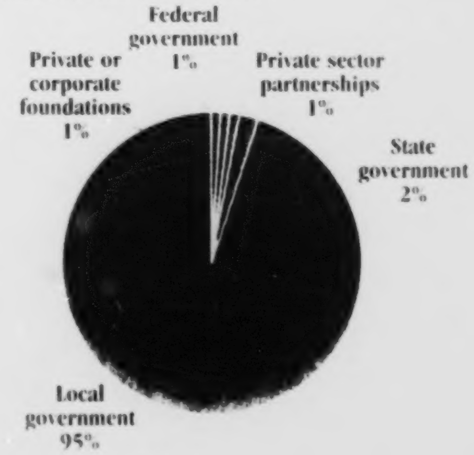
C Current Funding Sources for Network Development

Sources of funding currently available for the development of telecommunications infrastructure for education
all that apply marked bold
Local government
State government
Federal government
Private sector partnerships
Private or corporate foundations

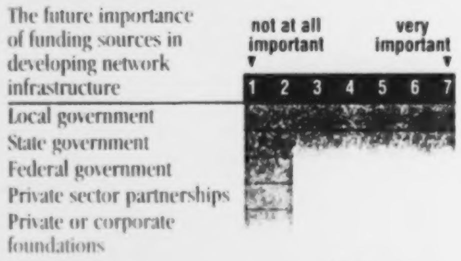
Other current sources of funding
No

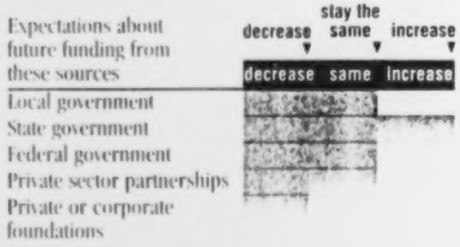
Funding sources and the percentage of funding from those sources used to develop infrastructure of existing educational telecommunications network
presented as a pie chart below

Funding Proportions from Sources

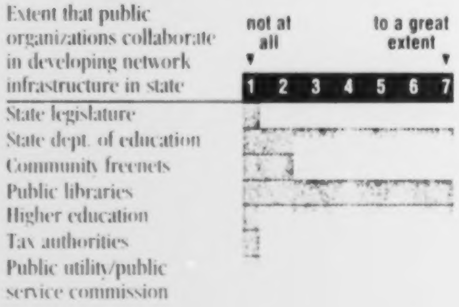


D Importance of Funding Sources and Future Expectations





E Government Collaboration in Infrastructure Development



The state's public utility/public service commission has established special tariffs for K-12 education
No

The significance of such tariffs for networking efforts for K-12 education
Not too significant

The impact the federal *Telecommunications Act of 1996* will have on state's network development
Positive impact

F Private Sector Collaboration in K-12 Network Development

Major telecommunications providers have established a program in the state to encourage network infrastructure building
No

Significance of such programs for networking efforts
Not too significant

Best way to establish relationships with telecommunications providers to develop state's telecommunications network infrastructure
"Present and identify common needs and solutions to meet those needs."

**"Don't know" response recorded*

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G Current Status of Network Development and Use Statewide

Percent of school districts in state with local dial-up access
30%

Percent of school districts in state with toll-free dial-up access
100%

Percent of school districts in state with dedicated access
20%

Percent of schools in state with a Web site
1%

Percent of K-12 educators who have state-provided or subsidized access to telecommunications networks
50%

Percent of K-12 educators who use these services
15%

Percent of K-12 students who have state-provided or subsidized access to telecommunications networks
50%

Percent of K-12 students who use these services
10%

The state education network provides dial-up network access
NA
"Colorado has no education telecommunications network as of yet."

The state education network provides dedicated network access
NA
"Colorado has no education telecommunications network as of yet."

Current network development efforts in state are primarily directed at providing
response marked bold
Dial-up access
Dedicated access
Both dial-up and dedicated access

H Network Access 1995 and 1996 and Projected Access 1997

Type of Access	1995	1996	1997
Percent of local dial-up	25%	30%	30%
Percent of toll-free dial-up	100%	100%	100%
Percent of dedicated access	20%	20%	25%
Percent of local dial-up	100%	100%	100%
Percent of toll-free dial-up	100%	100%	100%
Percent of dedicated access	50%	50%	55%
Percent of local dial-up	25%	30%	35%
Percent of toll-free dial-up	100%	100%	100%
Percent of dedicated access	5%	5%	7%

Percentages of state's school districts and the network access they used in spring 1995 and spring 1996 and projections for spring 1997

I State Initiatives Promoting Network Use

State has an initiative to integrate Web resources into state curriculum frameworks
No

State's education agency would consider adopting Web resources as textbooks
Yes

State has a safety-net initiative to provide underserved K-12 populations with Internet connectivity
No

State education agency currently has a Web site at
http://www.cde.state.co.us/

J State's Information Service Providers in the Public Sector

Sources in state that provide information services on public networks
all that apply marked bold
State legislature
Public utility/public service commission
State dept. of education
Community freenets
Public libraries
Higher education
Tax authorities

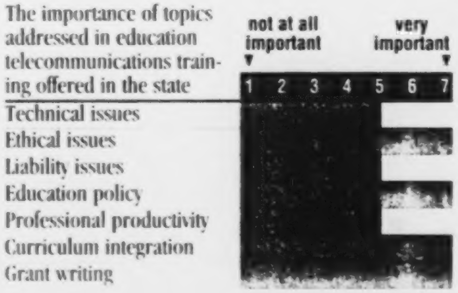
Other sources of public information networks
Governor's Office, numerous Colorado state agencies

K Telecommunications Training Topics and Their Importance

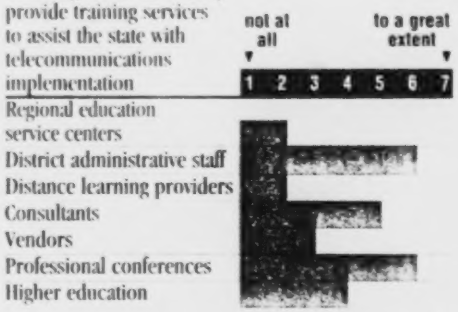
Topics currently addressed in education telecommunications training offered in the state
all that apply marked bold
Technical issues
Ethical issues
Liability issues
Education policy
Professional productivity
Curriculum integration
Grant writing

Other topics addressed in training
Copyright laws, community access

The importance of topics addressed in education telecommunications training offered in the state



The extent to which the following sources currently provide training services to assist the state with telecommunications implementation



Other sources of training
US WEST Foundation

---

*"*Don't know" response recorded*

Connecticut

A Demographics

Number of school districts
166

Number of school buildings
1,004

Number of K-12 teachers currently employed
39,816

Number of K-12 students currently enrolled
507,825

Number of students in district with largest enrollment
24,000

Number of students in district with smallest enrollment
93

Number of districts with fewer than 1,000 students
*****

For Further Information

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Hartford, Connecticut 06106
bgoyette@knownet.cphi.org
203-566-6660 (phone)
203-566-5623 (fax)

All information current in spring 1996

B Implementation of Telecommunications Plan

State has a long-range telecommunications plan for K-12 education
Yes

If not, state is developing one
NA

Existing K-12 plan is part of a larger, statewide plan
No

Percentage of existing K-12 plan currently completed
75–100%

Percentage of existing K-12 plan completed one year ago
75–100%

State is planning a NetDay to wire schools for Internet access
Yes

Funding Proportions from Sources

Figures not provided

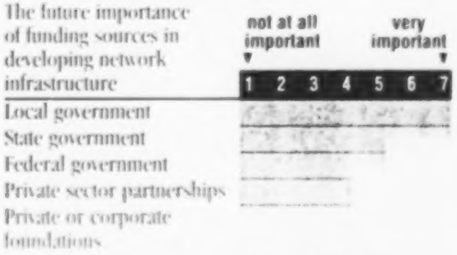
C Current Funding Sources for Network Development

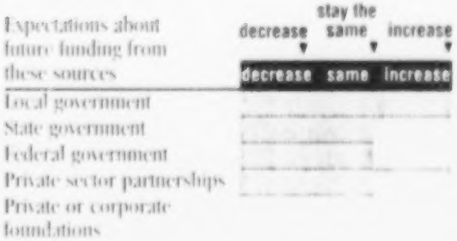
Sources of funding currently available for the development of telecommunications infrastructure for education
all that apply marked bold
Local government
State government
Federal government
Private sector partnerships
Private or corporate foundations

Other current sources of funding
No

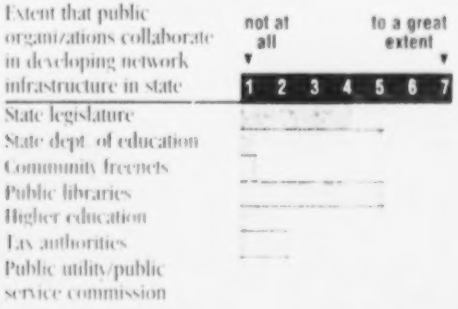
Funding sources and the percentage of funding from those sources used to develop infrastructure of existing educational telecommunications network
presented as a pie chart below

D Importance of Funding Sources and Future Expectations





E Government Collaboration in Infrastructure Development



The state's public utility/public service commission has established special tariffs for K-12 education
Yes

The significance of such tariffs for networking efforts for K-12 education
Very significant

The impact the federal *Telecommunications Act of 1996* will have on state's network development
Positive impact

F Private Sector Collaboration in K-12 Network Development

Major telecommunications providers have established a program in the state to encourage network infrastructure building
Yes

Specific providers
Southern New England Telecom

Parties that provided the incentives for establishing this program
Southern New England Telecom, state government

Significance of such programs for networking efforts
Somewhat significant

Best way to establish relationships with telecommunications providers to develop state's telecommunications network infrastructure
"State-level planning. We have a joint committee: it needs to take place at a fairly high level in the state for equity to come about. Cooperative planning is the big thing."

* *"Don't know" response recorded*

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G Current Status of Network Development and Use Statewide

Percent of school districts in state with local dial-up access
*

Percent of school districts in state with toll-free dial-up access
*

Percent of school districts in state with dedicated access
*

Percent of schools in state with a Web site
*

Percent of K-12 educators who have state-provided or subsidized access to telecommunications networks
*

Percent of K-12 educators who use these services
*

Percent of K-12 students who have state-provided or subsidized access to telecommunications networks
*

Percent of K-12 students who use these services
*

The state education network provides dial-up network access
NA
"[There is] no education telecommunications network in Connecticut."

The state education network provides dedicated network access
NA
"[There is] no education telecommunications network in Connecticut."

Current network development efforts in state are primarily directed at providing
response marked bold
Dial-up access
Dedicated access
Both dial-up and dedicated access

*"Don't know" response recorded

H Network Access 1995 and 1996 and Projected Access 1997

Type of Access	1995	1996	1997
Percent of local dial-up	35%	60%	90%
Percent of toll-free dial-up	*	*	*
Percent of dedicated access	*	*	*
Percent of local dial-up	*	*	75%
Percent of toll-free dial-up	*	*	*
Percent of dedicated access	*	*	*
Percent of local dial-up	*	*	*
Percent of toll-free dial-up	*	*	*
Percent of dedicated access	*	*	*

Percentages of state's school districts and the network access they used in spring 1995 and spring 1996 and projections for spring 1997

I State Initiatives Promoting Network Use

State has an initiative to integrate Web resources into state curriculum frameworks
No

State's education agency would consider adopting Web resources as textbooks
*

State has a safety net initiative to provide underserved K-12 populations with Internet connectivity
Yes

State education agency currently has a Web site at
http://www.aces.k12.ct.us/csde
or
http://www.state.ct.us/sde/

J State's Information Service Providers in the Public Sector

Sources in state that provide information services on public networks
all that apply marked bold
State legislature
Public utility/public service commission
State dept. of education
Community freenets
Public libraries
Higher education*
Tax authorities*

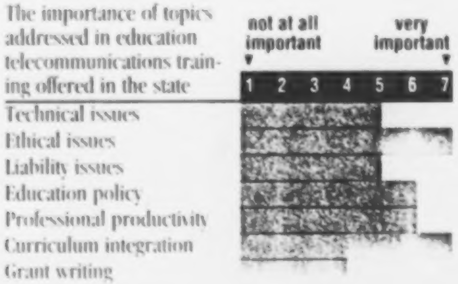
Other sources of public information networks
Regional education service centers

K Telecommunications Training Topics and Their Importance

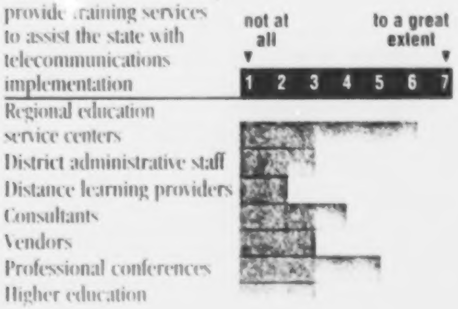
Topics currently addressed in education telecommunications training offered in the state
all that apply marked bold
Technical issues
Ethical issues
Liability issues*
Education policy*
Professional productivity
Curriculum integration
Grant writing*

Other topics addressed in training
Internet training, technology planning, instructional planning

The importance of topics addressed in education telecommunications training offered in the state



The extent to which the following sources currently provide training services to assist the state with telecommunications implementation



Other sources of training
No

DE

Delaware

A Demographics

Number of school districts
19

Number of school buildings
180

Number of K-12 teachers currently employed
7,000

Number of K-12 students currently enrolled
110,000

Number of students in district with largest enrollment
15,000

Number of students in district with smallest enrollment
600

Number of districts with fewer than 1,000 students
1

For Further Information

Paul Harjung
Delaware Center for Education Technology
pharjung@state.de.us

All information current in spring 1996

B Implementation of Telecommunications Plan

State has a long-range telecommunications plan for K-12 education
No

If not, state is developing one
Yes

Existing K-12 plan is part of a larger, statewide plan
NA

Percentage of existing K-12 plan currently completed
NA

Percentage of existing K-12 plan completed one year ago
NA

State is planning a NetDay to wire schools for Internet access
Yes

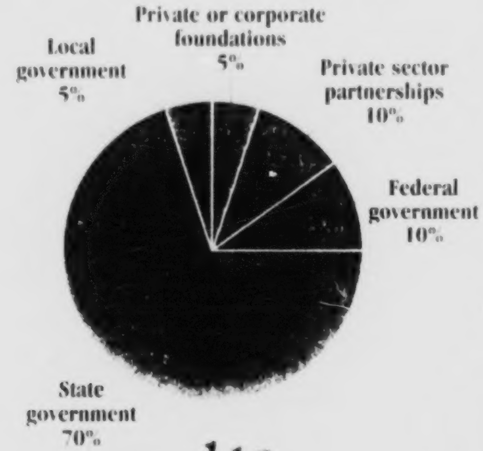
C Current Funding Sources for Network Development

Sources of funding currently available for the development of telecommunications infrastructure for education
all that apply marked bold
Local government
State government
Federal government
Private sector partnerships
Private or corporate foundations

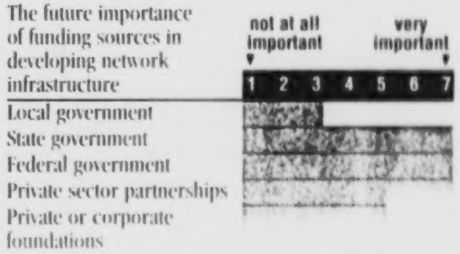
Other current sources of funding
No

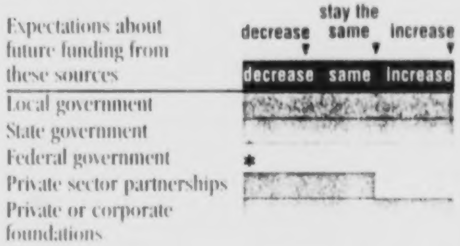
Funding sources and the percentage of funding from those sources used to develop infrastructure of existing educational telecommunications network
presented as a pie chart below

Funding Proportions from Sources

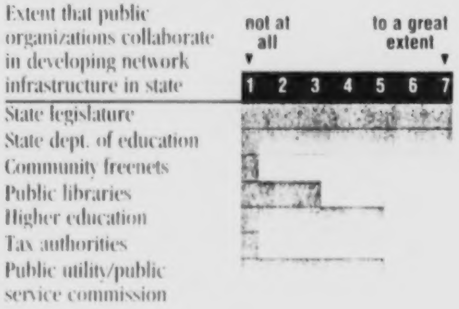


D Importance of Funding Sources and Future Expectations





E Government Collaboration in Infrastructure Development



The state's public utility/public service commission has established special tariffs for K-12 education
Yes

The significance of such tariffs for networking efforts for K-12 education
Very significant

The impact the federal *Telecommunications Act of 1996* will have on state's network development
Positive impact

F Private Sector Collaboration in K-12 Network Development

Major telecommunications providers have established a program in the state to encourage network infrastructure building
Yes

Specific providers
Bell Atlantic Corporation

Parties that provided the incentives for establishing this program
Jointly among state department of education, provider, Governor's Office, and the state legislature

Significance of such programs for networking efforts
Very significant

Best way to establish relationships with telecommunications providers to develop state's telecommunications network infrastructure
"Primarily, negotiation with providers and commitment on both sides. Agreements include provisions for both, such as the number of years the provider will serve without the state seeking other service providers."

* *"Don't know" response recorded*

119

120

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G Current Status of Network Development and Use Statewide

Percent of school districts in state with local dial-up access
100%

Percent of school districts in state with toll-free dial-up access
100%

Percent of school districts in state with dedicated access
100%

Percent of schools in state with a Web site
*****

Percent of K-12 educators who have state-provided or subsidized access to telecommunications networks
100%

Percent of K-12 educators who use these services
25%

Percent of K-12 students who have state-provided or subsidized access to telecommunications networks
*****

Percent of K-12 students who use these services
*****

The state education network provides dial-up network access
Yes

How dial-up access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

The state education network provides dedicated network access
Yes

How dedicated access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

Current network development efforts in state are primarily directed at providing
response marked bold
Dial-up access
Dedicated access
Both dial-up and dedicated access

* *"Don't know" response recorded*

H Network Access 1995 and 1996 and Projected Access 1997

Type of Access	1995	1996	1997
Percent of local dial-up	50%	75%	90%
Percent of toll-free dial-up	60%	100%	100%
Percent of dedicated access	30%	100%	100%
Percent of local dial-up	60%	100%	100%
Percent of toll-free dial-up	60%	100%	100%
Percent of dedicated access	30%	100%	100%
Percent of local dial-up	60%	100%	100%
Percent of toll-free dial-up	60%	100%	100%
Percent of dedicated access	30%	100%	100%

Percentages of state's school districts and the network access they used in spring 1995 and spring 1996 and projections for spring 1997

I State Initiatives Promoting Network Use

State has an initiative to integrate Web resources into state curriculum frameworks
Yes

State's education agency would consider adopting Web resources as textbooks
*****

State has a safety-net initiative to provide underserved K-12 populations with Internet connectivity
Yes

State education agency currently has a Web site at
http://www.dpi.state.de.us/

J State's Information Service Providers in the Public Sector

Sources in state that provide information services on public networks
all that apply marked bold
State legislature
Public utility/public service commission*
State dept. of education
Community freenets*
Public libraries
Higher education
Tax authorities*

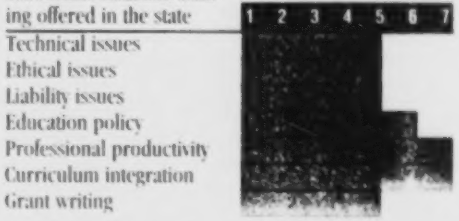
Other sources of public information networks
Delaware Office of Information Systems

K Telecommunications Training Topics and Their Importance

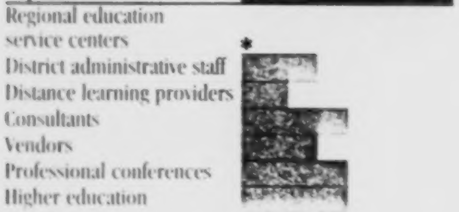
Topics currently addressed in education telecommunications training offered in the state
all that apply marked bold
Technical issues
Ethical issues
Liability issues*
Education policy
Professional productivity
Curriculum integration
Grant writing

Other topics addressed in training
No

The importance of topics addressed in education telecommunications training offered in the state



The extent to which the following sources currently provide training services to assist the state with telecommunications implementation



Other sources of training
Delaware department of education

Florida

A Demographics

Number of school districts
67

Number of school buildings
3,000

Number of K-12 teachers currently employed
120,000

Number of K-12 students currently enrolled
2,300,000

Number of students in district with largest enrollment
350,000

Number of students in district with smallest enrollment
1,000

Number of districts with fewer than 1,000 students
1

For Further Information

Bill Schmid
Director of Florida Information Resource Network (FIRN)
Florida Dept. of Education
325 West Gaines Street, B1-14 FEC
Tallahassee, Florida 32399
schmidb@mail.firn.edu
904-487-8656 (phone)
904-922-1359 (fax)

All information current in spring 1996

B Implementation of Telecommunications Plan

State has a long-range telecommunications plan for K-12 education
Yes

If not, state is developing one
NA

Existing K-12 plan is part of a larger, statewide plan
No

Percentage of existing K-12 plan currently completed
75–100%

Percentage of existing K-12 plan completed one year ago
75–100%

State is planning a NetDay to wire schools for Internet access
Yes

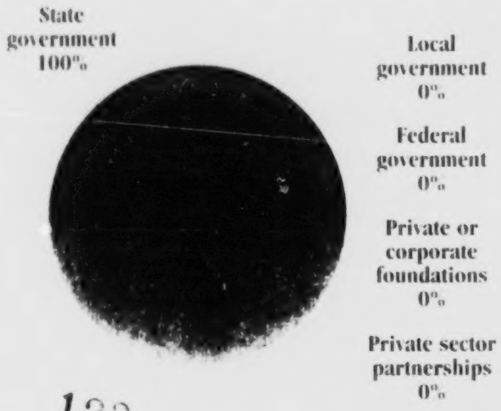
C Current Funding Sources for Network Development

Sources of funding currently available for the development of telecommunications infrastructure for education
all that apply marked bold
Local government
State government
Federal government
Private sector partnerships
Private or corporate foundations

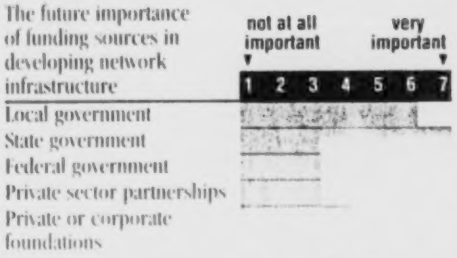
Other current sources of funding
No

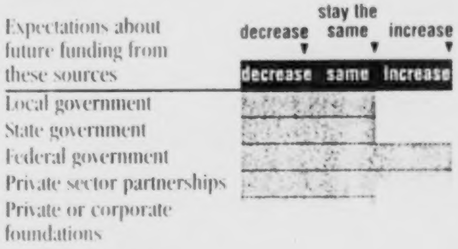
Funding sources and the percentage of funding from those sources used to develop infrastructure of existing educational telecommunications network
presented as a pie chart below

Funding Proportions from Sources

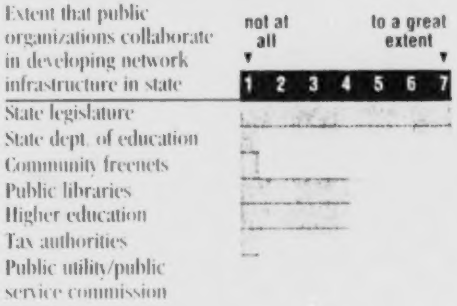


D Importance of Funding Sources and Future Expectations





E Government Collaboration in Infrastructure Development



The state's public utility/public service commission has established special tariffs for K-12 education
No

The significance of such tariffs for networking efforts for K-12 education
Very significant

The impact the federal *Telecommunications Act of 1996* will have on state's network development
Positive impact

F Private Sector Collaboration in K-12 Network Development

Major telecommunications providers have established a program in the state to encourage network infrastructure building
No

Significance of such programs for networking efforts
Not at all significant

Best way to establish relationships with telecommunications providers to develop state's telecommunications network infrastructure
"We will push a state contract for a common level of service at an equal price. My concern is rural areas being able to afford what's taken for granted in urban areas. Our goal is to make it affordable for everybody."

* *"Don't know" response recorded*

123

124

G Current Status of Network Development and Use Statewide

Percent of school districts in state with local dial-up access
100%

Percent of school districts in state with toll-free dial-up access
15%

Percent of school districts in state with dedicated access
100%

Percent of schools in state with a Web site
20%

Percent of K-12 educators who have state-provided or subsidized access to telecommunications networks
100%

Percent of K-12 educators who use these services
30%

Percent of K-12 students who have state-provided or subsidized access to telecommunications networks
100%

Percent of K-12 students who use these services
30%

The state education network provides dial-up network access
Yes

How dial-up access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

The state education network provides dedicated network access
Yes

How dedicated access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

Current network development efforts in state are primarily directed at providing
response marked bold
Dial-up access
Dedicated access
Both dial-up and dedicated access

*"Don't know" response recorded

H Network Access 1995 and 1996 and Projected Access 1997

Type of Access	1995	1996	1997
Percent of local dial-up	50%	50%	*
Percent of toll-free dial-up	10%	15%	8%
Percent of dedicated access	100%	100%	100%
Percent of local dial-up	100%	100%	100%
Percent of toll-free dial-up	5%	0%	0%
Percent of dedicated access	100%	100%	100%
Percent of local dial-up	100%	100%	100%
Percent of toll-free dial-up	15%	10%	8%
Percent of dedicated access	100%	100%	100%

Percentages of state's school districts and the network access they used in spring 1995 and spring 1996 and projections for spring 1997

I State Initiatives Promoting Network Use

State has an initiative to integrate Web resources into state curriculum frameworks
Yes

State's education agency would consider adopting Web resources as textbooks
*

State has a safety-net initiative to provide underserved K-12 populations with Internet connectivity
Yes

State education agency currently has a Web site at
http://www.firn.edu/
or
http://www.firn.edu/doe/doehome.html

J State's Information Service Providers in the Public Sector

Sources in state that provide information services on public networks
all that apply marked bold
State legislature
Public utility/public service commission
State dept. of education
Community freenets
Public libraries
Higher education
Tax authorities

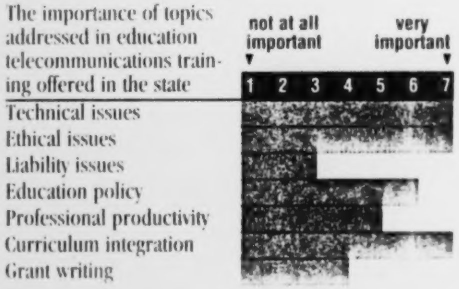
Other sources of public information networks
Many Florida state government departments

K Telecommunications Training Topics and Their Importance

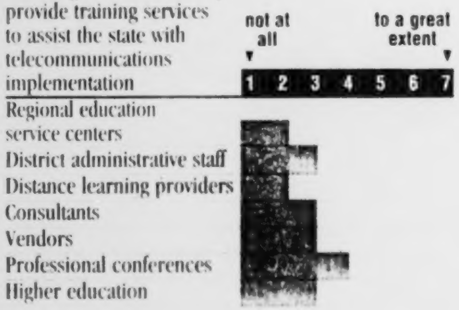
Topics currently addressed in education telecommunications training offered in the state
all that apply marked bold
Technical issues
Ethical issues
Liability issues
Education policy
Professional productivity
Curriculum integration
Grant writing

Other topics addressed in training
No

The importance of topics addressed in education telecommunications training offered in the state



The extent to which the following sources currently provide training services to assist the state with telecommunications implementation



Other sources of training
Florida department of education

Georgia

A Demographics

Number of school districts
182

Number of school buildings
1,832

Number of K-12 teachers currently employed
75,600

Number of K-12 students currently enrolled
1,400,000

Number of students in district with largest enrollment
*****

Number of students in district with smallest enrollment
*****

Number of districts with fewer than 1,000 students
11

For Further Information

Bailey Mitchell
Office of Technology Services
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1754 Twin Towers East
Atlanta, Georgia 30334
bmitchel@gadoe.gac.peachnet.edu
404-656-2523 (phone)
404-657-6822 (fax)

All information current in spring 1996

B Implementation of Telecommunications Plan

State has a long-range telecommunications plan for K-12 education
Yes

If not, state is developing one
NA

Existing K-12 plan is part of a larger, statewide plan
Yes

Percentage of existing K-12 plan currently completed
25–49%

Percentage of existing K-12 plan completed one year ago
Less than 25%

State is planning a NetDay to wire schools for Internet access
Yes

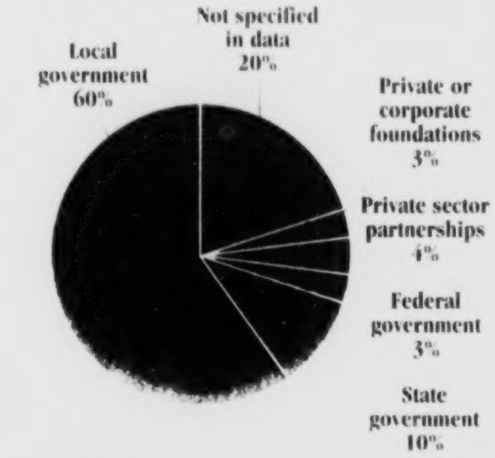
C Current Funding Sources for Network Development

Sources of funding currently available for the development of telecommunications infrastructure for education
all that apply marked bold
Local government
State government
Federal government
Private sector partnerships
Private or corporate foundations

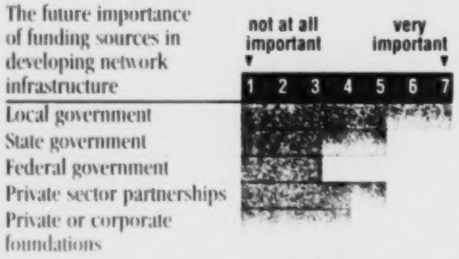
Other current sources of funding
No

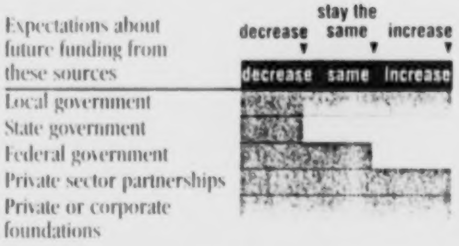
Funding sources and the percentage of funding from those sources used to develop infrastructure of existing educational telecommunications network
presented as a pie chart below

Funding Proportions from Sources

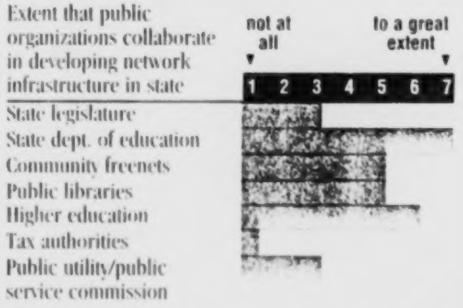


D Importance of Funding Sources and Future Expectations





E Government Collaboration in Infrastructure Development



The state's public utility/public service commission has established special tariffs for K-12 education
Yes

The significance of such tariffs for networking efforts for K-12 education
Somewhat significant

The impact the federal *Telecommunications Act of 1996* will have on state's network development
Positive impact

F Private Sector Collaboration in K-12 Network Development

Major telecommunications providers have established a program in the state to encourage network infrastructure building
Yes

Specific providers
MindSpring Enterprises, Inc., AT&T, Southwire Company, MCI Telecommunications Corporation

Parties that provided the incentives for establishing this program
MindSpring, AT&T, Southwire, MCI, Board of Regents for [Georgia's] Higher Education University System

Significance of such programs for networking efforts
Very significant

Best way to establish relationships with telecommunications providers to develop state's telecommunications network infrastructure
"By getting involved in local areas and setting up pilot sites; take those sites and duplicate them statewide, including rate reduction and other work-related activity."

**"Don't know" response recorded*

G Current Status of Network Development and Use Statewide

Percent of school districts in state with local dial-up access
80%

Percent of school districts in state with toll-free dial-up access
5%

Percent of school districts in state with dedicated access
5%

Percent of schools in state with a Web site
4%

Percent of K-12 educators who have state-provided or subsidized access to telecommunications networks
5%

Percent of K-12 educators who use these services
5%

Percent of K-12 students who have state-provided or subsidized access to telecommunications networks
*****

Percent of K-12 students who use these services
*****

The state education network provides dial-up network access
Yes

How dial-up access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

The state education network provides dedicated network access
Yes

How dedicated access is used
"Used at centers for training teachers."

Current network development efforts in state are primarily directed at providing
response marked bold
Dial-up access
Dedicated access
Both dial-up and dedicated access

H Network Access 1995 and 1996 and Projected Access 1997

Type of Access	1995	1996	1997
Percent of local dial-up	60%	75%	80%
Percent of toll-free dial-up	0%	5%	20%
Percent of dedicated access	1%	5%	20%
Percent of local dial-up	40%	85%	100%
Percent of toll-free dial-up	0%	3%	85%
Percent of dedicated access	0%	5%	15%
Percent of local dial-up	0%	3%	85%
Percent of toll-free dial-up	0%	0%	85%
Percent of dedicated access	0%	1%	5%

Percentages of state's school districts and the network access they used in spring 1995 and spring 1996 and projections for spring 1997

I State Initiatives Promoting Network Use

State has an initiative to integrate Web resources into state curriculum frameworks
No

State's education agency would consider adopting Web resources as textbooks
Yes

State has a safety-net initiative to provide underserved K-12 populations with Internet connectivity
No

State education agency currently has a Web site at
http://gadoe.gac.peachnet.edu/

J State's Information Service Providers in the Public Sector

Sources in state that provide information services on public networks
all that apply marked bold
State legislature
Public utility/public service commission*
State dept. of education
Community freenets
Public libraries
Higher education
Tax authorities*

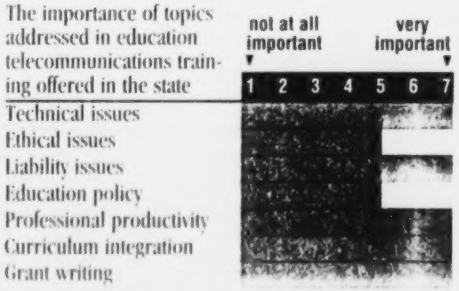
Other sources of public information networks
Other Georgia state agencies

K Telecommunications Training Topics and Their Importance

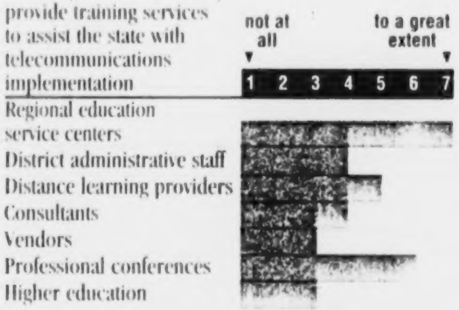
Topics currently addressed in education telecommunications training offered in the state
all that apply marked bold
Technical issues
Ethical issues
Liability issues
Education policy
Professional productivity
Curriculum integration
Grant writing

Other topics addressed in training
School improvement

The importance of topics addressed in education telecommunications training offered in the state



The extent to which the following sources currently provide training services to assist the state with telecommunications implementation



Other sources of training
No

---

* *"Don't know" response recorded*

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A Demographics

Number of school districts
1

Number of school buildings
246

Number of K–12 teachers currently employed
12,000

Number of K–12 students currently enrolled
187,000

Number of students in district with largest enrollment
14,000

Number of students in district with smallest enrollment
21

Number of districts with fewer than 1,000 students
*****

For Further Information

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kkim@kalama.doe.hawaii.edu
808-373-7760 (phone)
808-373-7765 (fax)

All information current in spring 1996

B Implementation of Telecommunications Plan

State has a long-range telecommunications plan for K–12 education
Yes

If not, state is developing one
NA

Existing K–12 plan is part of a larger, statewide plan
Yes

Percentage of existing K–12 plan currently completed
50–74%

Percentage of existing K–12 plan completed one year ago
Less than 25%

State is planning a NetDay to wire schools for Internet access
Yes

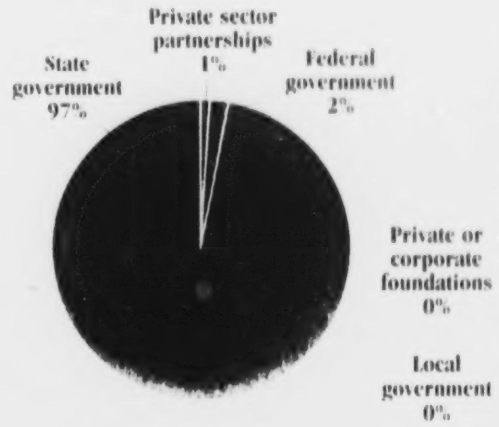
C Current Funding Sources for Network Development

Sources of funding currently available for the development of telecommunications infrastructure for education
all that apply marked bold
Local government
State government
Federal government
Private sector partnerships
Private or corporate foundations

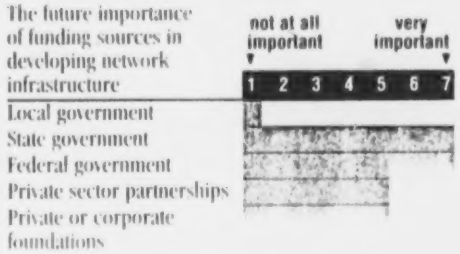
Other current sources of funding
No

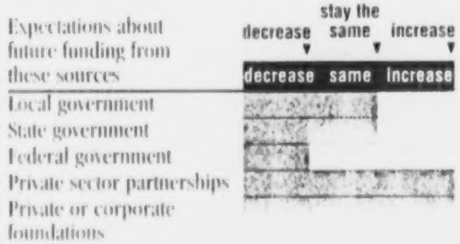
Funding sources and the percentage of funding from those sources used to develop infrastructure of existing educational telecommunications network
presented as a pie chart below

Funding Proportions from Sources

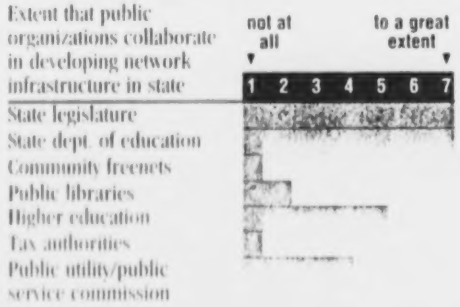


D Importance of Funding Sources and Future Expectations





E Government Collaboration in Infrastructure Development



The state's public utility/public service commission has established special tariffs for K–12 education
No

The significance of such tariffs for networking efforts for K–12 education
Very significant

The impact the federal *Telecommunications Act of 1996* will have on state's network development
Positive impact

F Private Sector Collaboration in K–12 Network Development

Major telecommunications providers have established a program in the state to encourage network infrastructure building
Yes

Specific providers
Oceanic Cablevision, GTE HiTel

Parties that provided the incentives for establishing this program
State of Hawaii, GTE HiTel

Significance of such programs for networking efforts
Very significant

Best way to establish relationships with telecommunications providers to develop state's telecommunications network infrastructure
"The best way is through a partnership with them and getting a mandate from the public service commission."

* *"Don't know" response recorded*

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G Current Status of Network Development and Use Statewide

Percent of school districts in state with local dial-up access
100%

Percent of school districts in state with toll-free dial-up access
100%

Percent of school districts in state with dedicated access
66%

Percent of schools in state with a Web site
75%

Percent of K-12 educators who have state-provided or subsidized access to telecommunications networks
20%

Percent of K-12 educators who use these services
20%

Percent of K-12 students who have state-provided or subsidized access to telecommunications networks
10%

Percent of K-12 students who use these services
10%

The state education network provides dial-up network access
No

The state education network provides dedicated network access
Yes

How dedicated access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

Current network development efforts in state are primarily directed at providing
response marked bold
Dial-up access
Dedicated access
Both dial-up and dedicated access

H Network Access 1995 and 1996 and Projected Access 1997

Type of Access	1995	1996	1997
Percent of local dial-up	40%	80%	100%
Percent of toll-free dial-up	75%	100%	100%
Percent of dedicated access	20%	66%	100%
Percent of local dial-up	NA	NA	NA
Percent of toll-free dial-up	NA	NA	NA
Percent of dedicated access	NA	NA	NA
Percent of local dial-up	NA	NA	NA
Percent of toll-free dial-up	NA	NA	NA
Percent of dedicated access	NA	NA	NA

Percentages of state's school districts and the network access they used in spring 1995 and spring 1996 and projections for spring 1997

I State Initiatives Promoting Network Use

State has an initiative to integrate Web resources into state curriculum frameworks
Yes

State's education agency would consider adopting Web resources as textbooks
Yes

State has a safety-net initiative to provide underserved K-12 populations with Internet connectivity
Yes

State education agency currently has a Web site at
http://www.k12.hi.us/

J State's Information Service Providers in the Public Sector

Sources in state that provide information services on public networks
all that apply marked bold
State legislature
Public utility/public service commission
State dept. of education
Community freenets
Public libraries
Higher education
Tax authorities

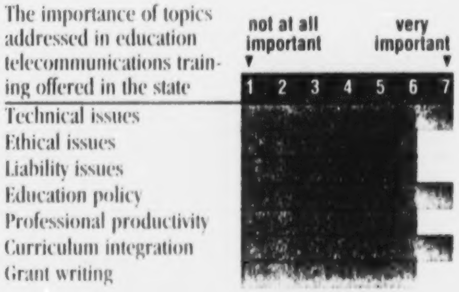
Other sources of public information networks
Hawaii state government

K Telecommunications Training Topics and Their Importance

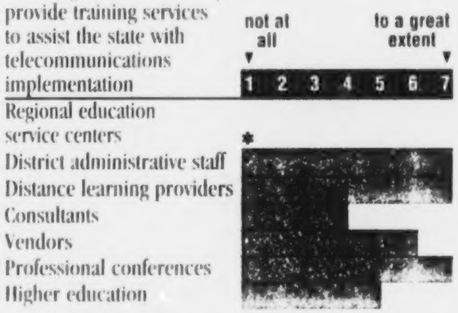
Topics currently addressed in education telecommunications training offered in the state
all that apply marked bold
Technical issues
Ethical issues
Liability issues
Education policy
Professional productivity
Curriculum integration
Grant writing

Other topics addressed in training
Telecommunications policy issues

The importance of topics addressed in education telecommunications training offered in the state



The extent to which the following sources currently provide training services to assist the state with telecommunications implementation



Other sources of training
Hawaii state government network agency

---

*"Don't know" response recorded

ID

Idaho

A Demographics

Number of school districts
112

Number of school buildings
714

Number of K-12 teachers currently employed
13,000

Number of K-12 students currently enrolled
241,000

Number of students in district with largest enrollment
*****

Number of students in district with smallest enrollment
9

Number of districts with fewer than 1,000 students
62

For Further Information

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Idaho Dept. of Education
P.O. Box 83720
Boise, Idaho 83720-0027
rlmincer@aol.com
208-332-6972 (phone)
208-334-4711 (fax)

All information current in spring 1996

B Implementation of Telecommunications Plan

State has a long-range telecommunications plan for K-12 education
Yes

If not, state is developing one
NA

Existing K-12 plan is part of a larger, statewide plan
Yes

Percentage of existing K-12 plan currently completed
50–74%

Percentage of existing K-12 plan completed one year ago
25–49%

State is planning a NetDay to wire schools for Internet access
No

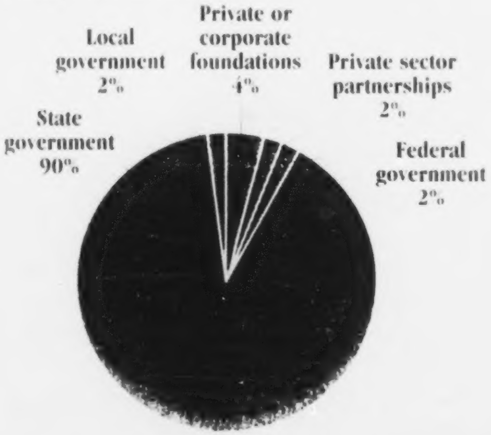
C Current Funding Sources for Network Development

Sources of funding currently available for the development of telecommunications infrastructure for education *all that apply marked bold*
Local government
State government
Federal government
Private sector partnerships
Private or corporate foundations

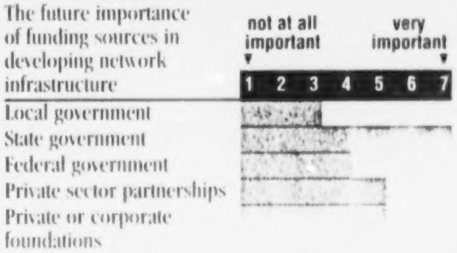
Other current sources of funding
Idaho State Public Utilities Commission

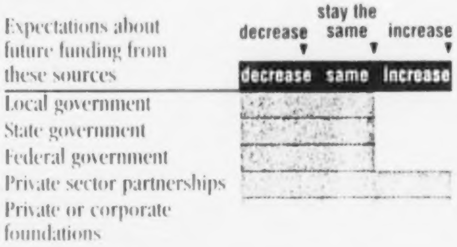
Funding sources and the percentage of funding from those sources used to develop infrastructure of existing educational telecommunications network *presented as a pie chart below*

Funding Proportions from Sources

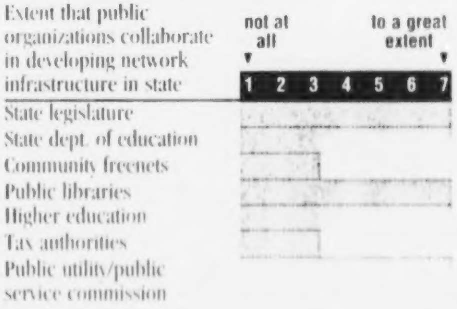


D Importance of Funding Sources and Future Expectations





E Government Collaboration in Infrastructure Development



The state's public utility/public service commission has established special tariffs for K-12 education
No

The significance of such tariffs for networking efforts for K-12 education
Very significant

The impact the federal *Telecommunications Act of 1996* will have on state's network development
Positive impact

F Private Sector Collaboration in K-12 Network Development

Major telecommunications providers have established a program in the state to encourage network infrastructure building
Yes

Specific providers
US WEST Foundation, AT&T

Parties that provided the incentives for establishing this program
US WEST Foundation, AT&T

Significance of such programs for networking efforts
Very significant

Best way to establish relationships with telecommunications providers to develop state's telecommunications network infrastructure
"Through the state legislature, by overseeing the infrastructure for the state; through the public utility commission working to reduce rates and costs; through the state department of education doing public relations to specify necessity, reduce costs, and connect the schools."

* *"Don't know" response recorded.*

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G Current Status of Network Development and Use Statewide

Percent of school districts in state with local dial-up access
20%

Percent of school districts in state with toll-free dial-up access
0%

Percent of school districts in state with dedicated access
1%

Percent of schools in state with a Web site
8%

Percent of K-12 educators who have state-provided or subsidized access to telecommunications networks
0%

Percent of K-12 educators who use these services
0%

Percent of K-12 students who have state-provided or subsidized access to telecommunications networks
0%

Percent of K-12 students who use these services
0%

The state education network provides dial-up network access
Yes

How dial-up access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

The state education network provides dedicated network access
*

Current network development efforts in state are primarily directed at providing
response marked bold
Dial-up access
Dedicated access
Both dial-up and dedicated access

H Network Access 1995 and 1996 and Projected Access 1997

Type of Access	1995	1996	1997
Percent of local dial-up	5%	20%	50%
Percent of toll-free dial-up	0%	0%	0%
Percent of dedicated access	1%	1%	1%
Percent of local dial-up	20%	80%	100%
Percent of toll-free dial-up	0%	0%	0%
Percent of dedicated access	60%	1%	100%
Percent of local dial-up	0%	1%	10%
Percent of toll-free dial-up	0%	0%	0%
Percent of dedicated access	0%	0%	8%

Percentages of state's school districts and the network access they used in spring 1995 and spring 1996 and projections for spring 1997

I State Initiatives Promoting Network Use

State has an initiative to integrate Web resources into state curriculum frameworks
No

State's education agency would consider adopting Web resources as textbooks
Yes

State has a safety net initiative to provide underserved K-12 populations with Internet connectivity
No

State education agency currently has a Web site at
http://www.sde.state.id.us/

J State's Information Service Providers in the Public Sector

Sources in state that provide information services on public networks
all that apply marked bold
State legislature
Public utility/public service commission*
State dept. of education
Community freenets
Public libraries
Higher education
Tax authorities*

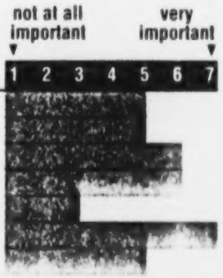
Other sources of public information networks
All Idaho state agencies

K Telecommunications Training Topics and Their Importance

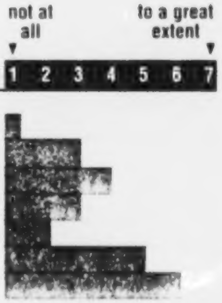
Topics currently addressed in education telecommunications training offered in the state
all that apply marked bold
Technical issues
Ethical issues
Liability issues
Education policy
Professional productivity
Curriculum integration
Grant writing

Other topics addressed in training
Developing wide area networks (WANs) for districtwide telecommunications services

The importance of topics addressed in education telecommunications training offered in the state



The extent to which the following sources currently provide training services to assist the state with telecommunications implementation



Other sources of training
Private foundations

---

* *"Don't know" response recorded*

Illinois

A Demographics

Number of school districts
903

Number of school buildings
4,200

Number of K-12 teachers currently employed
127,000

Number of K-12 students currently enrolled
1,800,000

Number of students in district with largest enrollment
400,000

Number of students in district with smallest enrollment
12

Number of districts with fewer than 1,000 students
495

For Further Information

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clemke@mail.isbe.state.il.us
217-782-5596 (phone)
217-785-7650 (fax)

All information current in spring 1996

B Implementation of Telecommunications Plan

State has a long-range telecommunications plan for K-12 education
Yes

If not, state is developing one
NA

Existing K-12 plan is part of a larger, statewide plan
No

Percentage of existing K-12 plan currently completed
Less than 25%

Percentage of existing K-12 plan completed one year ago
Less than 25%

State is planning a NetDay to wire schools for Internet access
No

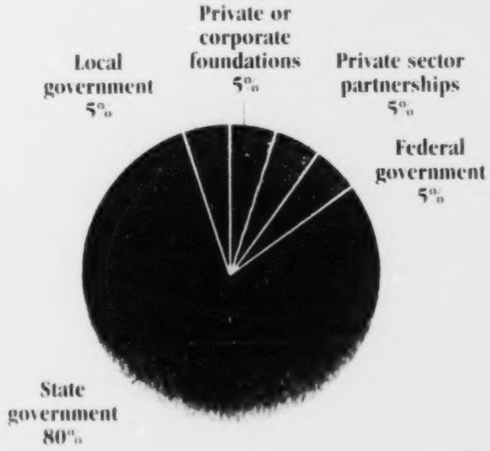
C Current Funding Sources for Network Development

Sources of funding currently available for the development of telecommunications infrastructure for education
all that apply marked bold
Local government
State government
Federal government
Private sector partnerships
Private or corporate foundations

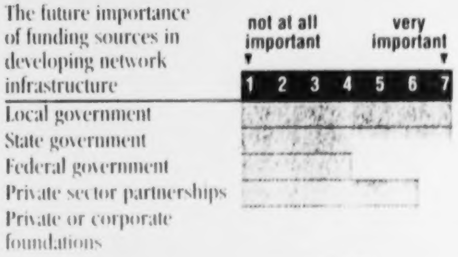
Other current sources of funding
No

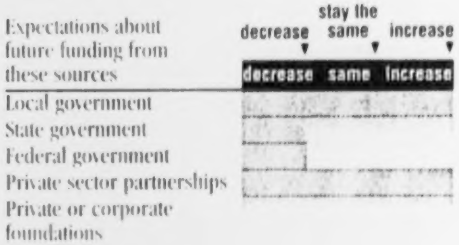
Funding sources and the percentage of funding from those sources used to develop infrastructure of existing educational telecommunications network
presented as a pie chart below

Funding Proportions from Sources

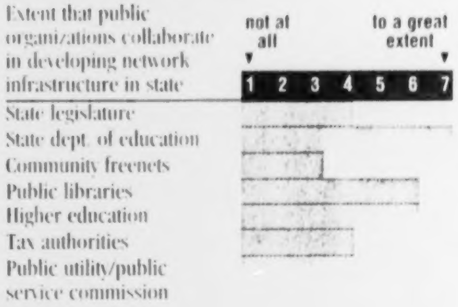


D Importance of Funding Sources and Future Expectations





E Government Collaboration in Infrastructure Development



The state's public utility/public service commission has established special tariffs for K-12 education
Yes

The significance of such tariffs for networking efforts for K-12 education
Very significant

The impact the federal *Telecommunications Act of 1996* will have on state's network development
Positive impact

F Private Sector Collaboration in K-12 Network Development

Major telecommunications providers have established a program in the state to encourage network infrastructure building
Yes

Specific providers
Ameritech Corporation, GTE

Parties that provided the incentives for establishing this program
Ameritech, GTE, Illinois Department of Central Management Services

Significance of such programs for networking efforts
Very significant

Best way to establish relationships with telecommunications providers to develop state's telecommunications network infrastructure
"Beat 'em over the head; give 'em money."

* *"Don't know" response recorded*

G Current Status of Network Development and Use Statewide

Percent of school districts in state with local dial-up access
40%

Percent of school districts in state with toll-free dial-up access
100%

Percent of school districts in state with dedicated access
5%

Percent of schools in state with a Web site
2%

Percent of K-12 educators who have state-provided or subsidized access to telecommunications networks
100%

Percent of K-12 educators who use these services
7%

Percent of K-12 students who have state-provided or subsidized access to telecommunications networks
0%

Percent of K-12 students who use these services
0%

The state education network provides dial-up network access
Yes

How dial-up access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

The state education network provides dedicated network access
Yes

How dedicated access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

Current network development efforts in state are primarily directed at providing
response marked bold
Dial-up access
Dedicated access
Both dial-up and dedicated access

H Network Access 1995 and 1996 and Projected Access 1997

Type of Access	1995	1996	1997
Percent of local dial-up	30%	40%	90%
Percent of toll-free dial-up	100%	100%	100%
Percent of dedicated access	3%	5%	25%
Percent of local dial-up	50%	70%	90%
Percent of toll-free dial-up	100%	100%	100%
Percent of dedicated access	10%	20%	35%
Percent of local dial-up	1%	1%	5%
Percent of toll-free dial-up	100%	100%	100%
Percent of dedicated access	0%	1%	10%

Percentages of state's school districts and the network access they used in spring 1995 and spring 1996 and projections for spring 1997

I State Initiatives Promoting Network Use

State has an initiative to integrate Web resources into state curriculum frameworks
Yes

State's education agency would consider adopting Web resources as textbooks
Yes

State has a safety-net initiative to provide underserved K-12 populations with Internet connectivity
Yes

State education agency currently has a Web site at
http://www.isbe.state.il.us/

J State's Information Service Providers in the Public Sector

Sources in state that provide information services on public networks
all that apply marked bold
State legislature
Public utility/public service commission*
State dept. of education
Community freenets
Public libraries
Higher education
Tax authorities

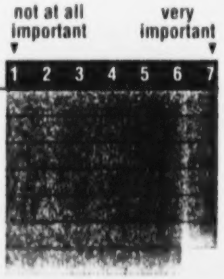
Other sources of public information networks
Community College Board

K Telecommunications Training Topics and Their Importance

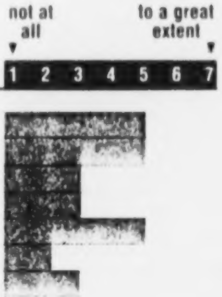
Topics currently addressed in education telecommunications training offered in the state
all that apply marked bold
Technical issues
Ethical issues
Liability issues
Education policy
Professional productivity
Curriculum integration
Grant writing

Other topics addressed in training
No

The importance of topics addressed in education telecommunications training offered in the state



The extent to which the following sources currently provide training services to assist the state with telecommunications implementation



Other sources of training
Argonne National Laboratories

"Don't know" response recorded

Indiana

A Demographics

Number of school districts
294

Number of school buildings
1,900

Number of K-12 teachers currently employed
64,000

Number of K-12 students currently enrolled
955,000

Number of students in district with largest enrollment
4,400

Number of students in district with smallest enrollment
185

Number of districts with fewer than 1,000 students
*****

For Further Information

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317-233-6326 (fax)

All information current in spring 1996

B Implementation of Telecommunications Plan

State has a long-range telecommunications plan for K-12 education
Yes

If not, state is developing one
NA

Existing K-12 plan is part of a larger, statewide plan
Yes

Percentage of existing K-12 plan currently completed
50–74%

Percentage of existing K-12 plan completed one year ago
Less than 25%

State is planning a NetDay to wire schools for Internet access
Yes

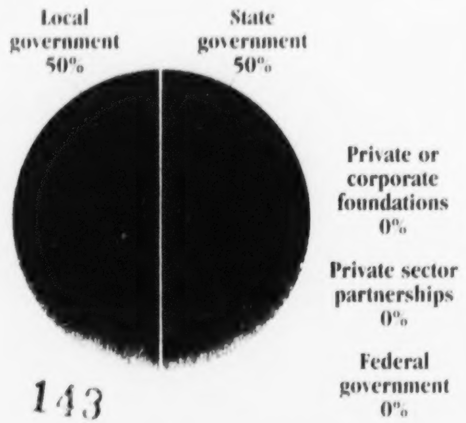
C Current Funding Sources for Network Development

Sources of funding currently available for the development of telecommunications infrastructure for education
all that apply marked bold
Local government
State government
Federal government
Private sector partnerships
Private or corporate foundations*

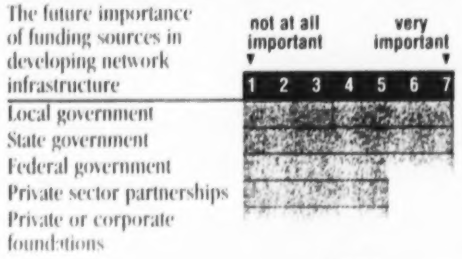
Other current sources of funding
No

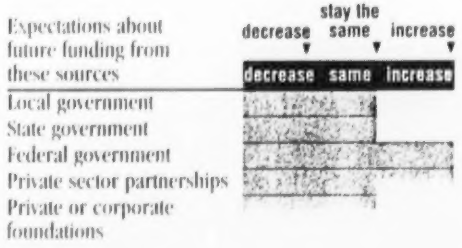
Funding sources and the percentage of funding from those sources used to develop infrastructure of existing educational telecommunications network
presented as a pie chart below

Funding Proportions from Sources

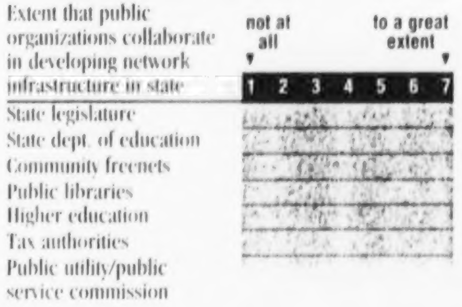


D Importance of Funding Sources and Future Expectations





E Government Collaboration in Infrastructure Development



The state's public utility/public service commission has established special tariffs for K-12 education
No

The significance of such tariffs for networking efforts for K-12 education
Very significant

The impact the federal *Telecommunications Act of 1996* will have on state's network development
Positive impact

F Private Sector Collaboration in K–12 Network Development

Major telecommunications providers have established a program in the state to encourage network infrastructure building
Yes

Specific providers
Sprint Communications, Ameritech Advanced Data Systems

Parties that provided the incentives for establishing this program
Sprint, Ameritech Advanced Data Systems, State of Indiana (by aggregating service)

Significance of such programs for networking efforts
Very significant

Best way to establish relationships with telecommunications providers to develop state's telecommunications network infrastructure
"To aggregate the demand from the public sector and go with vendors who give the biggest money breaks. The state has to have a management role in the operations of the backbone."

---

* *"Don't know" response recorded*

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G Current Status of Network Development and Use Statewide

Percent of school districts in state with local dial-up access
100%

Percent of school districts in state with toll-free dial-up access
100%

Percent of school districts in state with dedicated access
65%

Percent of schools in state with a Web site
10%

Percent of K-12 educators who have state-provided or subsidized access to telecommunications networks
90%

Percent of K-12 educators who use these services
*

Percent of K-12 students who have state-provided or subsidized access to telecommunications networks
*

Percent of K-12 students who use these services
*

The state education network provides dial-up network access
No

The state education network provides dedicated network access
Yes

How dedicated access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

Current network development efforts in state are primarily directed at providing
response marked bold
Dial-up access
Dedicated access
Both dial-up and dedicated access

"Don't know" response recorded.

H Network Access 1995 and 1996 and Projected Access 1997

Type of Access	1995	1996	1997
Percent of local dial-up	65%	80%	90%
Percent of toll-free dial-up	100%	100%	100%
Percent of dedicated access	5%	65%	100%
Percent of local dial-up	100%	100%	100%
Percent of toll-free dial-up	100%	100%	100%
Percent of dedicated access	10%	70%	100%
Percent of local dial-up	100%	100%	100%
Percent of toll-free dial-up	100%	100%	100%
Percent of dedicated access	5%	65%	100%

Percentages of state's school districts and the network access they used in spring 1995 and spring 1996 and projections for spring 1997

I State Initiatives Promoting Network Use

State has an initiative to integrate Web resources into state curriculum frameworks
Yes

State's education agency would consider adopting Web resources as textbooks
*

State has a safety net initiative to provide underserved K-12 populations with Internet connectivity
Yes

State education agency currently has a Web site at
http://www.state.in.us/

J State's Information Service Providers in the Public Sector

Sources in state that provide information services on public networks
all that apply marked bold
State legislature
Public utility/public service commission
State dept. of education
Community freenets
Public libraries
Higher education
Tax authorities

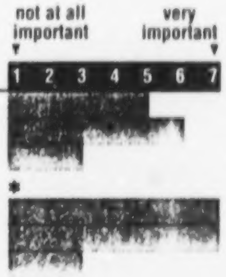
Other sources of public information networks
Many—almost all—Indiana state agencies

K Telecommunications Training Topics and Their Importance

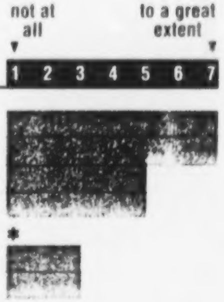
Topics currently addressed in education telecommunications training offered in the state
all that apply marked bold
Technical issues
Ethical issues
Liability issues
Education policy*
Professional productivity
Curriculum integration
Grant writing

Other topics addressed in training
No

The importance of topics addressed in education telecommunications training offered in the state



The extent to which the following sources currently provide training services to assist the state with telecommunications implementation



Other sources of training
Our Indiana state agencies

A Demographics

Number of school districts
380

Number of school buildings
1,556

Number of K–12 teachers currently employed
33,056

Number of K–12 students currently enrolled
496,386

Number of students in district with largest enrollment
25,000

Number of students in district with smallest enrollment
100

Number of districts with fewer than 1,000 students
200

For Further Information

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515-281-4122 (fax)

All information current in spring 1996

B Implementation of Telecommunications Plan

State has a long-range telecommunications plan for K–12 education
Yes

If not, state is developing one
NA

Existing K–12 plan is part of a larger, statewide plan
Yes

Percentage of existing K–12 plan currently completed
50–74%

Percentage of existing K–12 plan completed one year ago
50–74%

State is planning a NetDay to wire schools for Internet access
No

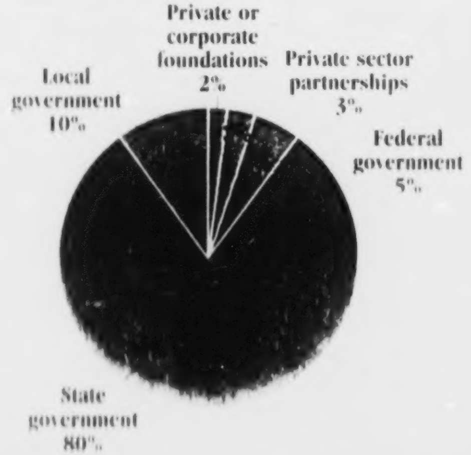
C Current Funding Sources for Network Development

Sources of funding currently available for the development of telecommunications infrastructure for education
all that apply marked bold
Local government
State government
Federal government
Private sector partnerships
Private or corporate foundations

Other current sources of funding
School-based property taxes

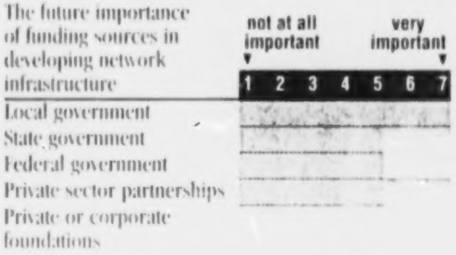
Funding sources and the percentage of funding from those sources used to develop infrastructure of existing educational telecommunications network
presented as a pie chart below

Funding Proportions from Sources

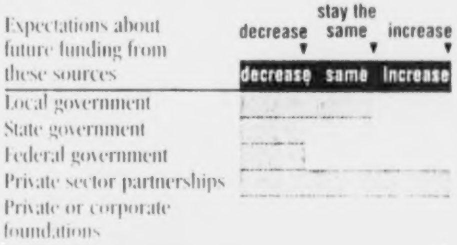


D Importance of Funding Sources and Future Expectations

The future importance of funding sources in developing network infrastructure

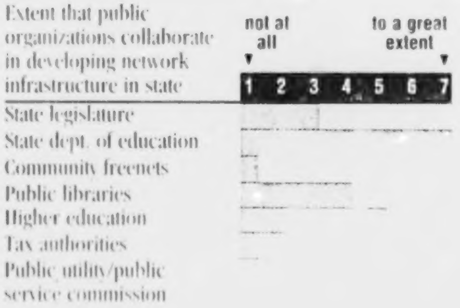


Expectations about future funding from these sources



E Government Collaboration in Infrastructure Development

Extent that public organizations collaborate in developing network infrastructure in state



The state's public utility/public service commission has established special tariffs for K–12 education
No

The significance of such tariffs for networking efforts for K–12 education
Very significant

The impact the federal *Telecommunications Act of 1996* will have on state's network development
Positive impact

F Private Sector Collaboration in K–12 Network Development

Major telecommunications providers have established a program in the state to encourage network infrastructure building
No

Significance of such programs for networking efforts
Somewhat significant

Best way to establish relationships with telecommunications providers to develop state's telecommunications network infrastructure
"The best way to develop a relationship with providers is for all on both sides to understand the mutual advantages of developing such networks."

* *"Don't know" response recorded*

G Current Status of Network Development and Use Statewide

Percent of school districts in state with local dial-up access
80%

Percent of school districts in state with toll-free dial-up access
25%

Percent of school districts in state with dedicated access
20%

Percent of schools in state with a Web site
10%

Percent of K-12 educators who have state-provided or subsidized access to telecommunications networks
40%

Percent of K-12 educators who use these services
20%

Percent of K-12 students who have state-provided or subsidized access to telecommunications networks
40%

Percent of K-12 students who use these services
25%

The state education network provides dial-up network access
Yes

How dial-up access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

The state education network provides dedicated network access
Yes

How dedicated access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

Current network development efforts in state are primarily directed at providing
response marked bold
Dial-up access
Dedicated access
Both dial-up and dedicated access

H Network Access 1995 and 1996 and Projected Access 1997

Type of Access	1995	1996	1997
Percent of local dial-up	99%	99%	99%
Percent of toll-free dial-up	25%	25%	30%
Percent of dedicated access	10%	20%	35%
Percent of local dial-up	65%	80%	90%
Percent of toll-free dial-up	90%	90%	90%
Percent of dedicated access	40%	50%	75%
Percent of local dial-up	65%	80%	90%
Percent of toll-free dial-up	5%	5%	5%
Percent of dedicated access	10%	15%	25%

Percentages of state's school districts and the network access they used in spring 1995 and spring 1996 and projections for spring 1997

I State Initiatives Promoting Network Use

State has an initiative to integrate Web resources into state curriculum frameworks
Yes

State's education agency would consider adopting Web resources as textbooks
No

State has a safety-net initiative to provide underserved K-12 populations with Internet connectivity
Yes

State education agency currently has a Web site at
http://www.state.ia.us/educate/

J State's Information Service Providers in the Public Sector

Sources in state that provide information services on public networks
all that apply marked bold
State legislature
Public utility/public service commission
State dept. of education
Community freenets
Public libraries
Higher education
Tax authorities

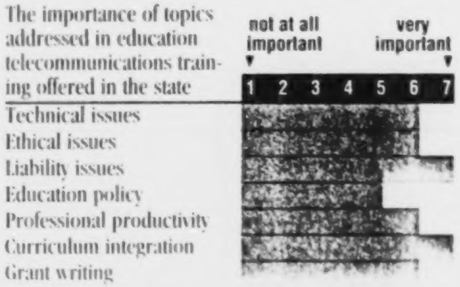
Other sources of public information networks
School districts, public broadcasting, Governor's Office

K Telecommunications Training Topics and Their Importance

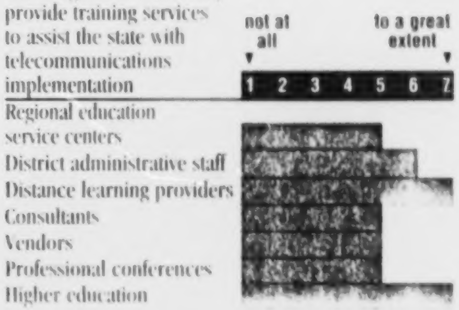
Topics currently addressed in education telecommunications training offered in the state
all that apply marked bold
Technical issues
Ethical issues
Liability issues
Education policy
Professional productivity
Curriculum integration
Grant writing

Other topics addressed in training
Teaching telecommunications, administering telecommunications sites

The importance of topics addressed in education telecommunications training offered in the state



The extent to which the following sources currently provide training services to assist the state with telecommunications implementation



Other sources of training
Professional associations

---

* "Don't know" response recorded

KS

Kansas

A Demographics

Number of school districts
304

Number of school buildings
1,490

Number of K-12 teachers currently employed
30,729

Number of K-12 students currently enrolled
463,018

Number of students in district with largest enrollment
45,626

Number of students in district with smallest enrollment
75

Number of districts with fewer than 1,000 students
209

B Implementation of Telecommunications Plan

State has a long-range telecommunications plan for K-12 education
No

If not, state is developing one
Yes

Existing K-12 plan is part of a larger, statewide plan
NA

Percentage of existing K-12 plan currently completed
NA

Percentage of existing K-12 plan completed one year ago
NA

State is planning a NetDay to wire schools for Internet access
No

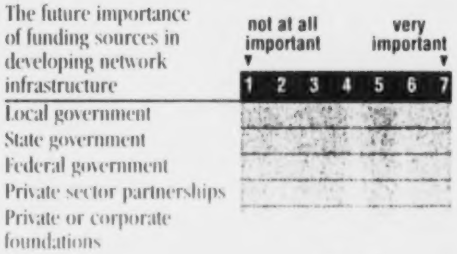
C Current Funding Sources for Network Development

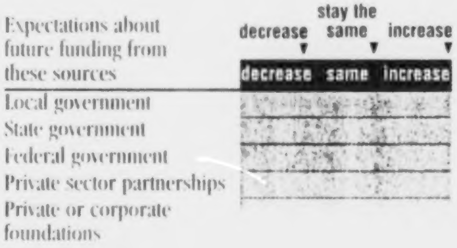
Sources of funding currently available for the development of telecommunications infrastructure for education
all that apply marked bold
Local government
State government
Federal government
Private sector partnerships
Private or corporate foundations

Other current sources of funding
No

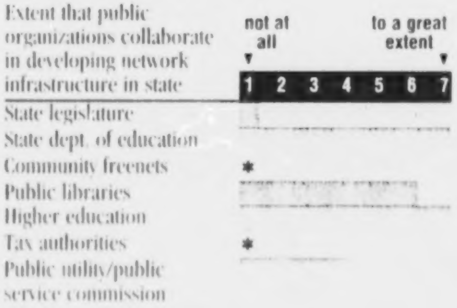
Funding sources and the percentage of funding from those sources used to develop infrastructure of existing educational telecommunications network
presented as a pie chart below

D Importance of Funding Sources and Future Expectations





E Government Collaboration in Infrastructure Development



The state's public utility/public service commission has established special tariffs for K-12 education
Yes

The significance of such tariffs for networking efforts for K-12 education
Very significant

The impact the federal *Telecommunications Act of 1996* will have on state's network development
Positive impact

F Private Sector Collaboration in K–12 Network Development

Major telecommunications providers have established a program in the state to encourage network infrastructure building
Yes

Specific providers
Southwestern Bell Telephone, Pioneer Telecommunications

Parties that provided the incentives for establishing this program
Southwestern Bell, Pioneer Telecommunications, school districts, state department of education

Significance of such programs for networking efforts
Very significant

Best way to establish relationships with telecommunications providers to develop state's telecommunications network infrastructure
"The single best way would be to put out a bid process; that is, have an RFP (request for purchase) and have them bid it for the whole state."

*"Don't know" response recorded

For Further Information

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Kansas Board of Education
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913-296-2317 (phone)
913-296-7933 (fax)

All information current in spring 1996

Funding Proportions from Sources

Figures not provided

151

152

G Current Status of Network Development and Use Statewide

Percent of school districts in state with local dial-up access
45%

Percent of school districts in state with toll-free dial-up access
*

Percent of school districts in state with dedicated access
8%

Percent of schools in state with a Web site
20%

Percent of K-12 educators who have state-provided or subsidized access to telecommunications networks
*

Percent of K-12 educators who use these services
*

Percent of K-12 students who have state-provided or subsidized access to telecommunications networks
*

Percent of K-12 students who use these services
*

The state education network provides dial-up network access
Yes

How dial-up access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

The state education network provides dedicated network access
Yes

How dedicated access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

Current network development efforts in state are primarily directed at providing
response marked bold
Dial-up access
Dedicated access
Both dial-up and dedicated access

"Don't know" response recorded

H Network Access 1995 and 1996 and Projected Access 1997

Type of Access	1995	1996	1997
Percent of local dial-up	*	45%	*
Percent of toll-free dial-up	*	*	*
Percent of dedicated access	*	8%	*
Percent of local dial-up	*	*	*
Percent of toll-free dial-up	*	*	*
Percent of dedicated access	*	*	*
Percent of local dial-up	*	*	*
Percent of toll-free dial-up	*	*	*
Percent of dedicated access	*	*	*

Percentages of state's school districts and the network access they used in spring 1995 and spring 1996 and projections for spring 1997

I State Initiatives Promoting Network Use

State has an initiative to integrate Web resources into state curriculum frameworks
Yes

State's education agency would consider adopting Web resources as textbooks
Yes

State has a safety-net initiative to provide underserved K-12 populations with Internet connectivity
Yes

State education agency currently has a Web site at
http://www.ksbe.state.ks.us/Welcome.html

J State's Information Service Providers in the Public Sector

Sources in state that provide information services on public networks
all that apply marked bold
State legislature
Public utility/public service commission*
State dept. of education
Community freenets*
Public libraries
Higher education
Tax authorities*

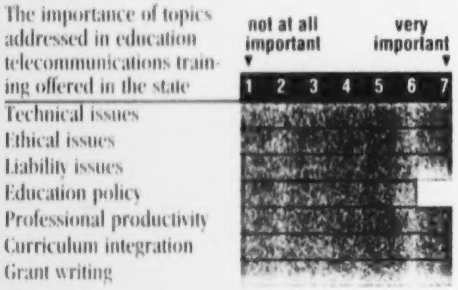
Other sources of public information networks
*

K Telecommunications Training Topics and Their Importance

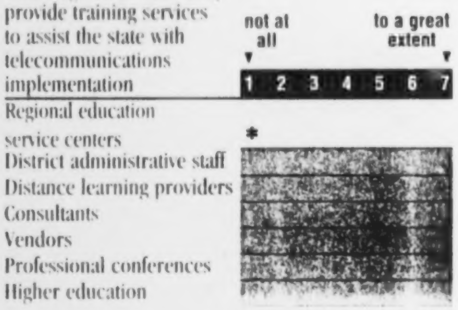
Topics currently addressed in education telecommunications training offered in the state
all that apply marked bold
Technical issues
Ethical issues
Liability issues
Education policy
Professional productivity
Curriculum integration
Grant writing

Other topics addressed in training
No

The importance of topics addressed in education telecommunications training offered in the state



The extent to which the following sources currently provide training services to assist the state with telecommunications implementation



Other sources of training
Kansas Board of Education

KS

Kentucky

A Demographics

Number of
school districts
176

Number of
school buildings
1,400

Number of K–12 teachers
currently employed
35,000

Number of K–12 students
currently enrolled
600,000

Number of students
in district with
largest enrollment
75,000

Number of students
in district with
smallest enrollment
15,000

Number of districts with
fewer than 1,000 students
*****

For Further Information

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502-564-7884 or 502-564-4250 (fax)

All information current in spring 1996

B Implementation of Telecommunications Plan

State has a long-range telecommunications plan for K–12 education
Yes

If not, state is developing one
NA

Existing K–12 plan is part of a larger, statewide plan
Yes

Percentage of existing K–12 plan currently completed
25–49%

Percentage of existing K–12 plan completed one year ago
Less than 25%

State is planning a NetDay to wire schools for Internet access
*****

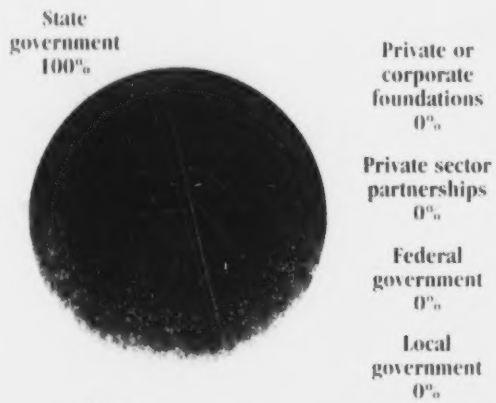
C Current Funding Sources for Network Development

Sources of funding currently available for the development of telecommunications infrastructure for education
all that apply marked bold
Local government
State government
Federal government
Private sector partnerships
Private or corporate foundations

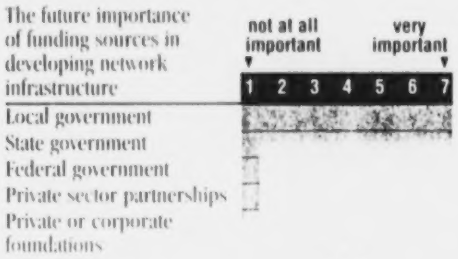
Other current sources of funding
No

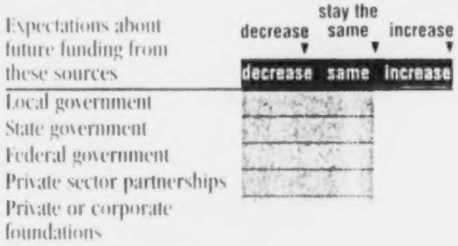
Funding sources and the percentage of funding from those sources used to develop infrastructure of existing educational telecommunications network
presented as a pie chart below

Funding Proportions from Sources

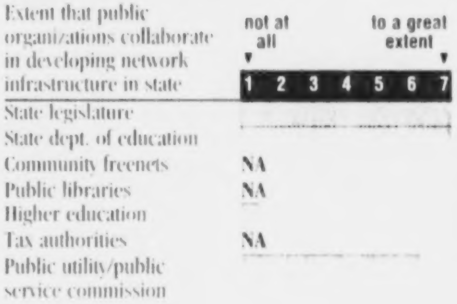


D Importance of Funding Sources and Future Expectations





E Government Collaboration in Infrastructure Development



The state's public utility/public service commission has established special tariffs for K–12 education
No

The significance of such tariffs for networking efforts for K–12 education
Very significant

The impact the federal *Telecommunications Act of 1996* will have on state's network development
No effect

F Private Sector Collaboration in K–12 Network Development

Major telecommunications providers have established a program in the state to encourage network infrastructure building
Yes

Specific providers
South Central Bell, GTE, Litel Communications

Parties that provided the incentives for establishing this program
State government

Significance of such programs for networking efforts
Very significant

Best way to establish relationships with telecommunications providers to develop state's telecommunications network infrastructure
"They can come and discuss benefits (e.g., effect of a WAN [wide area network] on a school or district) but, generally, district superintendents do not understand the benefits or know how to utilize the techniques for implementing a network infrastructure."

* *"Don't know" response recorded*

G Current Status of Network Development and Use Statewide

Percent of school districts in state with local dial-up access
*

Percent of school districts in state with toll-free dial-up access
0%

Percent of school districts in state with dedicated access
30%

Percent of schools in state with a Web site
2%

Percent of K-12 educators who have state-provided or subsidized access to telecommunications networks
30%

Percent of K-12 educators who use these services
30%

Percent of K-12 students who have state-provided or subsidized access to telecommunications networks
30%

Percent of K-12 students who use these services
30%

The state education network provides dial-up network access
No

The state education network provides dedicated network access
Yes

How dedicated access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

Current network development efforts in state are primarily directed at providing
response marked bold
Dial-up access
Dedicated access
Both dial-up and dedicated access

*"Don't know" response recorded.

H Network Access 1995 and 1996 and Projected Access 1997

Type of Access	1995	1996	1997
Percent of local dial-up	60%	100%	100%
Percent of toll-free dial-up	0%	0%	0%
Percent of dedicated access	15%	30%	70%
Percent of local dial-up	0%	0%	0%
Percent of toll-free dial-up	0%	0%	0%
Percent of dedicated access	0%	10%	20%
Percent of local dial-up	0%	0%	0%
Percent of toll-free dial-up	0%	0%	0%
Percent of dedicated access	15%	30%	70%

Percentages of state's school districts and the network access they used in spring 1995 and spring 1996 and projections for spring 1997

I State Initiatives Promoting Network Use

State has an initiative to integrate Web resources into state curriculum frameworks
Yes

State's education agency would consider adopting Web resources as textbooks
Yes

State has a safety-net initiative to provide underserved K-12 populations with Internet connectivity
No

State education agency currently has a Web site at
http://www.kde.state.ky.us/

J State's Information Service Providers in the Public Sector

Sources in state that provide information services on public networks
all that apply marked bold
State legislature
Public utility/public service commission*
State dept. of education
Community freenets
Public libraries
Higher education
Tax authorities

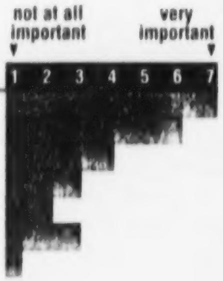
Other sources of public information networks
No

K Telecommunications Training Topics and Their Importance

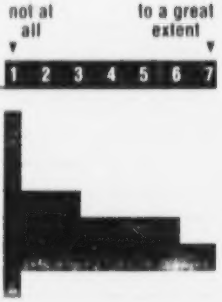
Topics currently addressed in education telecommunications training offered in the state
all that apply marked bold
Technical issues
Ethical issues
Liability issues
Education policy
Professional productivity
Curriculum integration
Grant writing

Other topics addressed in training
No

The importance of topics addressed in education telecommunications training offered in the state



The extent to which the following sources currently provide training services to assist the state with telecommunications implementation



Other sources of training
No

Louisiana

A Demographics

Number of school districts
67

Number of school buildings
556

Number of K-12 teachers currently employed
47,241

Number of K-12 students currently enrolled
774,149

Number of students in district with largest enrollment
85,979

Number of students in district with smallest enrollment
2,067

Number of districts with fewer than 1,000 students
0

For Further Information

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626 North Fourth Street
Suite 702
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pwaguespack@mail.doe.state.la.us
504-342-3454 (phone)
504-342-0308 (fax)

All information current in spring 1996

B Implementation of Telecommunications Plan

State has a long-range telecommunications plan for K-12 education
No

If not, state is developing one
Yes

Existing K-12 plan is part of a larger, statewide plan
NA

Percentage of existing K-12 plan currently completed
NA

Percentage of existing K-12 plan completed one year ago
NA

State is planning a NetDay to wire schools for Internet access
Yes

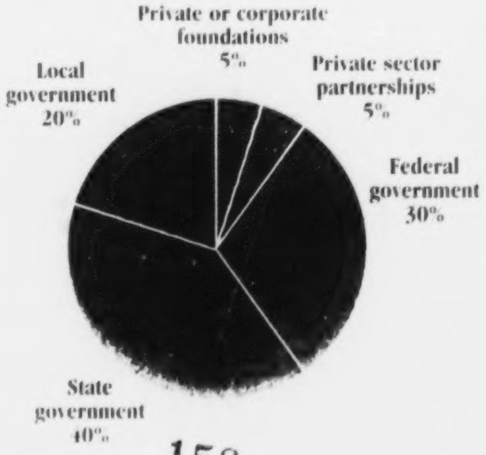
C Current Funding Sources for Network Development

Sources of funding currently available for the development of telecommunications infrastructure for education
all that apply marked bold
Local government
State government
Federal government
Private sector partnerships
Private or corporate foundations

Other current sources of funding
No

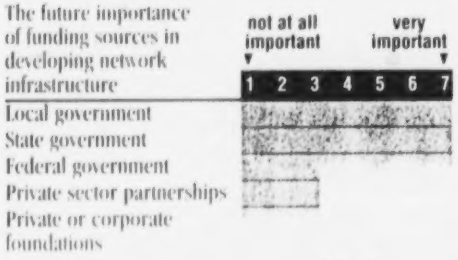
Funding sources and the percentage of funding from those sources used to develop infrastructure of existing educational telecommunications network
presented as a pie chart below

Funding Proportions from Sources

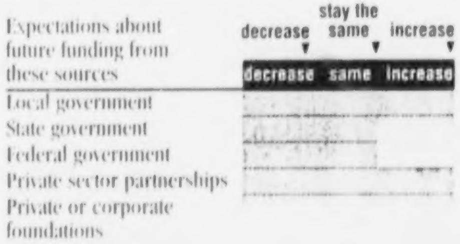


D Importance of Funding Sources and Future Expectations

The future importance of funding sources in developing network infrastructure

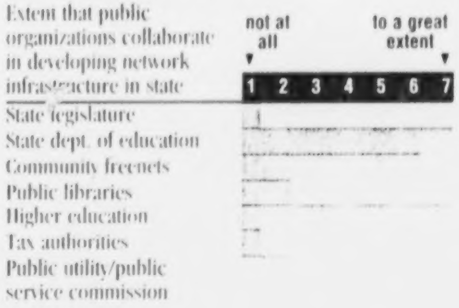


Expectations about future funding from these sources



E Government Collaboration in Infrastructure Development

Extent that public organizations collaborate in developing network infrastructure in state



The state's public utility/public service commission has established special tariffs for K-12 education
No

The significance of such tariffs for networking efforts for K-12 education
Somewhat significant

The impact the federal *Telecommunications Act of 1996* will have on state's network development
Positive impact

F Private Sector Collaboration in K-12 Network Development

Major telecommunications providers have established a program in the state to encourage network infrastructure building
Yes

Specific providers
AT&T, BellSouth Corporation

Parties that provided the incentives for establishing this program
AT&T, BellSouth

Significance of such programs for networking efforts
Somewhat significant

Best way to establish relationships with telecommunications providers to develop state's telecommunications network infrastructure
"The best way to establish relationships is, let providers know the state expects the best price and intends to rely on less expensive service; e.g., we prefer going to cable-based infrastructure because we already have a significant cable infrastructure in schools and cable modems are cheap."

*"Don't know" response recorded

G Current Status of Network Development and Use Statewide

Percent of school districts in state with local dial-up access
15%

Percent of school districts in state with toll-free dial-up access
25%

Percent of school districts in state with dedicated access
9%

Percent of schools in state with a Web site
5%

Percent of K–12 educators who have state-provided or subsidized access to telecommunications networks
5%

Percent of K–12 educators who use these services
5%

Percent of K–12 students who have state-provided or subsidized access to telecommunications networks
5%

Percent of K–12 students who use these services
5%

The state education network provides dial-up network access
Yes

How dial-up access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

The state education network provides dedicated network access
Yes

How dedicated access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

Current network development efforts in state are primarily directed at providing
response marked bold
Dial-up access
Dedicated access
Both dial-up and dedicated access

H Network Access 1995 and 1996 and Projected Access 1997

Type of Access	**1995**	**1996**	**1997**
Percent of local dial-up	10%	15%	20%
Percent of toll-free dial-up	5%	25%	65%
Percent of dedicated access	9%	9%	12%
Percent of local dial-up	100%	100%	100%
Percent of toll-free dial-up	100%	100%	100%
Percent of dedicated access	100%	100%	100%
Percent of local dial-up	0%	0%	0%
Percent of toll-free dial-up	10%	25%	65%
Percent of dedicated access	0%	0%	2%

Percentages of state's school districts and the network access they used in spring 1995 and spring 1996 and projections for spring 1997

I State Initiatives Promoting Network Use

State has an initiative to integrate Web resources into state curriculum frameworks
Yes

State's education agency would consider adopting Web resources as textbooks
Yes

State has a safety-net initiative to provide underserved K–12 populations with Internet connectivity
No

State education agency currently has a Web site at
http://www.doe.state.la.us/

J State's Information Service Providers in the Public Sector

Sources in state that provide information services on public networks
all that apply marked bold
State legislature
Public utility/public service commission
State dept. of education
Community freenets
Public libraries
Higher education
Tax authorities

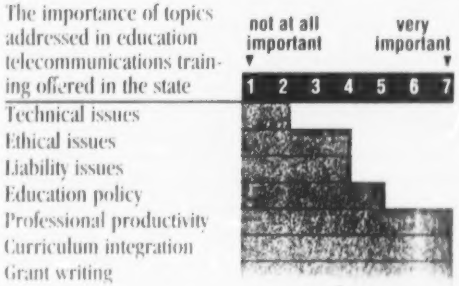
Other sources of public information networks
Governor's Office, Lt. Governor's Office, Department of Labor

K Telecommunications Training Topics and Their Importance

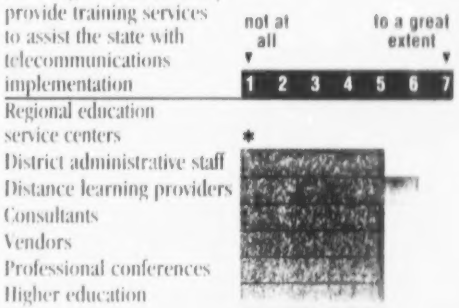
Topics currently addressed in education telecommunications training offered in the state
all that apply marked bold
Technical issues
Ethical issues
Liability issues
Education policy
Professional productivity
Curriculum integration
Grant writing

Other topics addressed in training
Integrating technology to school reform plans; assistance technology for children with disabilities

The importance of topics addressed in education telecommunications training offered in the state



The extent to which the following sources currently provide training services to assist the state with telecommunications implementation



Other sources of training
Personal contacts, such as other colleagues

---

* *"Don't know" response recorded*

A Demographics

Number of school districts
284

Number of school buildings
726

Number of K-12 teachers currently employed
14,297

Number of K-12 students currently enrolled
213,825

Number of students in district with largest enrollment
8,284

Number of students in district with smallest enrollment
8

Number of districts with fewer than 1,000 students
207

For Further Information

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Deputy Commissioner
Maine Dept. of Education
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Augusta, Maine 04333
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207-287-5112 (phone)
207-287-5802 (fax)

All information current in spring 1996

B Implementation of Telecommunications Plan

State has a long-range telecommunications plan for K-12 education
Yes

If not, state is developing one
NA

Existing K-12 plan is part of a larger, statewide plan
No

Percentage of existing K-12 plan currently completed
25–49%

Percentage of existing K-12 plan completed one year ago
Less than 25%

State is planning a NetDay to wire schools for Internet access
No

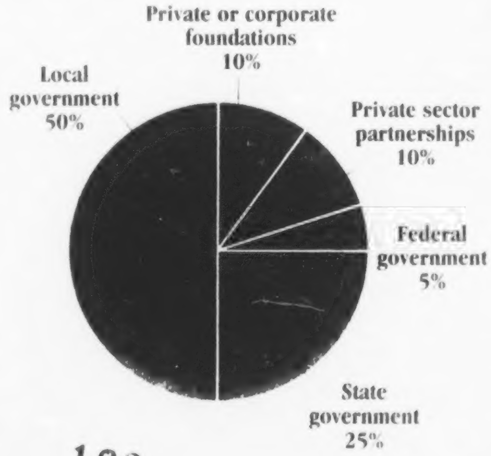
C Current Funding Sources for Network Development

Sources of funding currently available for the development of telecommunications infrastructure for education
all that apply marked bold
Local government
State government
Federal government
Private sector partnerships
Private or corporate foundations

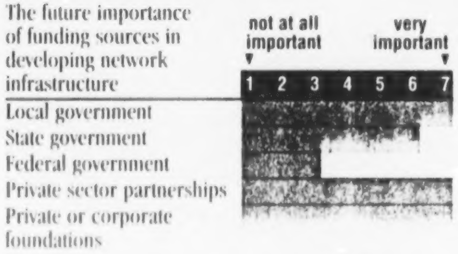
Other current sources of funding
No

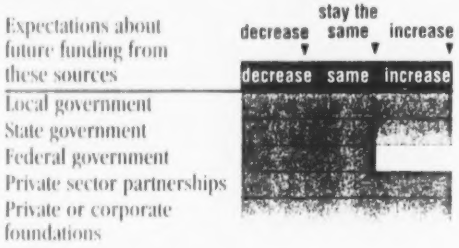
Funding sources and the percentage of funding from those sources used to develop infrastructure of existing educational telecommunications network
presented as a pie chart below

Funding Proportions from Sources

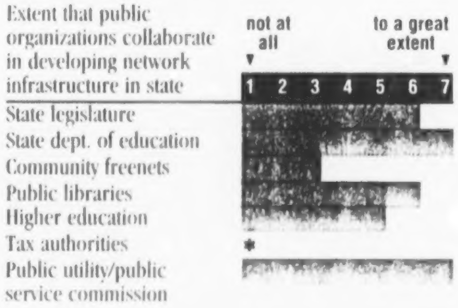


D Importance of Funding Sources and Future Expectations





E Government Collaboration in Infrastructure Development



The state's public utility/public service commission has established special tariffs for K-12 education
No

The significance of such tariffs for networking efforts for K-12 education
Very significant

The impact the federal *Telecommunications Act of 1996* will have on state's network development
Positive impact

F Private Sector Collaboration in K-12 Network Development

Major telecommunications providers have established a program in the state to encourage network infrastructure building
Yes

Specific providers
NYNEX Corporation

Parties that provided the incentives for establishing this program
Public Utilities Commission of Maine

Significance of such programs for networking efforts
Very significant

Best way to establish relationships with telecommunications providers to develop state's telecommunications network infrastructure
"Funds (e.g., the Public Utilities Commission ordered NYNEX to dedicate $20 million in equipment, rates, and services to public schools and libraries) and involvement of many different parties (advisory board, cable companies, service providers, etc.)."

* *"Don't know" response recorded*

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G Current Status of Network Development and Use Statewide

Percent of school districts in state with local dial-up access
*

Percent of school districts in state with toll-free dial-up access
*

Percent of school districts in state with dedicated access
12%

Percent of schools in state with a Web site
30%

Percent of K-12 educators who have state-provided or subsidized access to telecommunications networks
55%

Percent of K-12 educators who use these services
55%

Percent of K-12 students who have state-provided or subsidized access to telecommunications networks
40%

Percent of K-12 students who use these services
45%

The state education network provides dial-up network access
Yes

How dial-up access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level*
Classroom instruction
Student resource

The state education network provides dedicated network access
Yes

How dedicated access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

Current network development efforts in state are primarily directed at providing
response marked bold
Dial-up access
Dedicated access
Both dial-up and dedicated access

*"Don't know" response recorded

H Network Access 1995 and 1996 and Projected Access 1997

Type of Access	1995	1996	1997
Percent of local dial-up	100%	100%	100%
Percent of toll-free dial-up	*	*	*
Percent of dedicated access	9%	12%	90%
Percent of local dial-up	*	*	0%
Percent of toll-free dial-up	*	*	*
Percent of dedicated access	66%	66%	100%
Percent of local dial-up	7%	10%	5%
Percent of toll-free dial-up	*	*	*
Percent of dedicated access	8%	10%	4%

Percentages of state's school districts and the network access they used in spring 1995 and spring 1996 and projections for spring 1997

I State Initiatives Promoting Network Use

State has an initiative to integrate Web resources into state curriculum frameworks
Yes

State's education agency would consider adopting Web resources as textbooks
*

State has a safety-net initiative to provide underserved K-12 populations with Internet connectivity
Yes

State education agency currently has a Web site at
http://www.state.me.us/education/homepage.html

J State's Information Service Providers in the Public Sector

Sources in state that provide information services on public networks
all that apply marked bold
State legislature
Public utility/public service commission
State dept. of education
Community freenets
Public libraries
Higher education
Tax authorities*

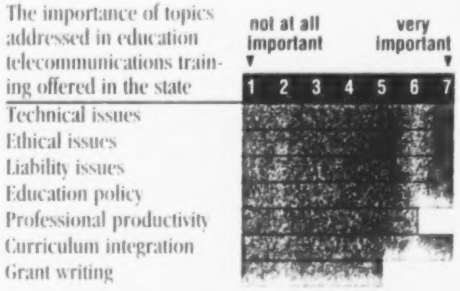
Other sources of public information networks
"A number of Maine state agencies and more added all the time."

K Telecommunications Training Topics and Their Importance

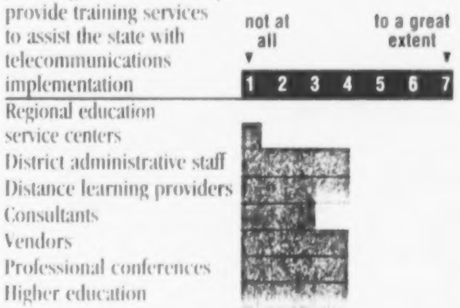
Topics currently addressed in education telecommunications training offered in the state
all that apply marked bold
Technical issues
Ethical issues
Liability issues
Education policy
Professional productivity
Curriculum integration
Grant writing

Other topics addressed in training
No

The importance of topics addressed in education telecommunications training offered in the state



The extent to which the following sources currently provide training services to assist the state with telecommunications implementation



Other sources of training
Maine Internet Education Consortium

MD

Maryland

A Demographics

Number of school districts
24

Number of school buildings
1,263

Number of K-12 teachers currently employed
52,000

Number of K-12 students currently enrolled
790,938

Number of students in district with largest enrollment
118,478

Number of students in district with smallest enrollment
2,794

Number of districts with fewer than 1,000 students
0

For Further Information

Gregg Talley
Education Coordinator
Maryland Dept. of Education
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Baltimore, Maryland 21201
gtalley@umd5.umd.edu
410-767-0075 (phone)
410-333-2026 (fax)

All information current in spring 1996

B Implementation of Telecommunications Plan

State has a long-range telecommunications plan for K-12 education
Yes

If not, state is developing one
NA

Existing K-12 plan is part of a larger, statewide plan
No

Percentage of existing K-12 plan currently completed
Less than 25%

Percentage of existing K-12 plan completed one year ago
Less than 25%

State is planning a NetDay to wire schools for Internet access
Yes

C Current Funding Sources for Network Development

Sources of funding currently available for the development of telecommunications infrastructure for education
all that apply marked bold
Local government
State government
Federal government
Private sector partnerships
Private or corporate foundations

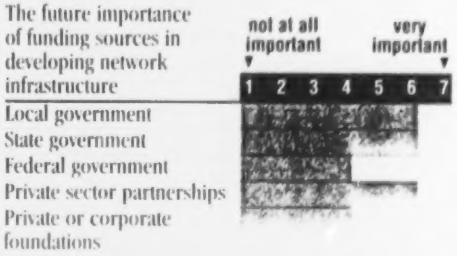
Other current sources of funding
No

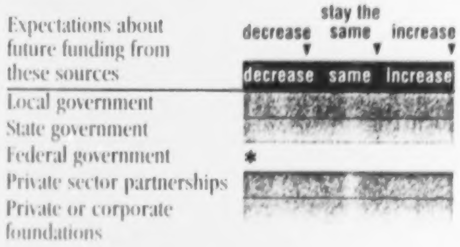
Funding sources and the percentage of funding from those sources used to develop infrastructure of existing educational telecommunications network
presented as a pie chart below

Funding Proportions from Sources

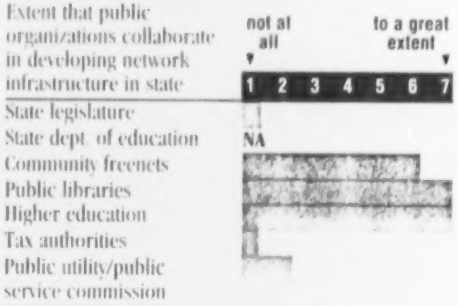
Figures not provided

D Importance of Funding Sources and Future Expectations





E Government Collaboration in Infrastructure Development



The state's public utility/public service commission has established special tariffs for K-12 education
Yes

The significance of such tariffs for networking efforts for K-12 education
Very significant

The impact the federal *Telecommunications Act of 1996* will have on state's network development
Positive impact

F Private Sector Collaboration in K-12 Network Development

Major telecommunications providers have established a program in the state to encourage network infrastructure building
Yes

Specific providers
Bell Atlantic Corporation, DIGEX, BBN Planet Corporation, AT&T

Parties that provided the incentives for establishing this program
Governor's Office

Significance of such programs for networking efforts
Very significant

Best way to establish relationships with telecommunications providers to develop state's telecommunications network infrastructure
"Collaboration and developing clear partnership arrangements; collaborations among local school districts, the state department of education, and any state information technology planning."

* *"Don't know" response recorded*

G Current Status of Network Development and Use Statewide

Percent of school districts in state with local dial-up access
50%

Percent of school districts in state with toll-free dial-up access
*

Percent of school districts in state with dedicated access
5%

Percent of schools in state with a Web site
5%

Percent of K-12 educators who have state-provided or subsidized access to telecommunications networks
*

Percent of K-12 educators who use these services
*

Percent of K-12 students who have state-provided or subsidized access to telecommunications networks
*

Percent of K-12 students who use these services
*

The state education network provides dial-up network access
Yes
"There are several networks."

How dial-up access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level*
Classroom instruction
Student resource

The state education network provides dedicated network access
*

How dedicated access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

Current network development efforts in state are primarily directed at providing
response marked bold
Dial-up access
Dedicated access
Both dial-up and dedicated access

*"Don't know" response recorded

H Network Access 1995 and 1996 and Projected Access 1997

Type of Access	1995	1996	1997
Percent of local dial-up	75%	100%	100%
Percent of toll-free dial-up	*	*	*
Percent of dedicated access	4%	5%	7%
Percent of local dial-up	*	*	*
Percent of toll-free dial-up	*	*	*
Percent of dedicated access	*	*	*
Percent of local dial-up	*	*	*
Percent of toll-free dial-up	*	*	*
Percent of dedicated access	*	*	*

Percentages of state's school districts and the network access they used in spring 1995 and spring 1996 and projections for spring 1997

I State Initiatives Promoting Network Use

State has an initiative to integrate Web resources into state curriculum frameworks
No

State's education agency would consider adopting Web resources as textbooks
No

State has a safety net initiative to provide underserved K-12 populations with Internet connectivity
No

State education agency currently has a Web site at
http://www.msde.state.md.us/

J State's Information Service Providers in the Public Sector

Sources in state that provide information services on public networks
all that apply marked bold
State legislature
Public utility/public service commission
State dept. of education
Community freenets
Public libraries
Higher education
Tax authorities

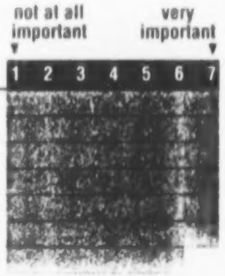
Other sources of public information networks
No

K Telecommunications Training Topics and Their Importance

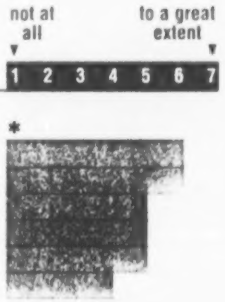
Topics currently addressed in education telecommunications training offered in the state
all that apply marked bold
Technical issues
Ethical issues
Liability issues
Education policy
Professional productivity
Curriculum integration
Grant writing

Other topics addressed in training
No

The importance of topics addressed in education telecommunications training offered in the state



The extent to which the following sources currently provide training services to assist the state with telecommunications implementation



Other sources of training
School-based support

Massachusetts

MA

A Demographics

Number of school districts
356

Number of school buildings
1,800

Number of K-12 teachers currently employed
60,000

Number of K-12 students currently enrolled
915,000

Number of students in district with largest enrollment
68,000

Number of students in district with smallest enrollment
44

Number of districts with fewer than 1,000 students
131

For Further Information

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gregory_g_nadeau@doe.mass.edu
617-388-3300 (ext. 729) (phone)

All information current in spring 1996

B Implementation of Telecommunications Plan

State has a long-range telecommunications plan for K-12 education
Yes

If not, state is developing one
NA

Existing K-12 plan is part of a larger, statewide plan
No

Percentage of existing K-12 plan currently completed
*****

Percentage of existing K-12 plan completed one year ago
*****

State is planning a NetDay to wire schools for Internet access
Yes

C Current Funding Sources for Network Development

Sources of funding currently available for the development of telecommunications infrastructure for education *all that apply marked bold*

Local government
State government
Federal government
Private sector partnerships
Private or corporate foundations

Other current sources of funding
No

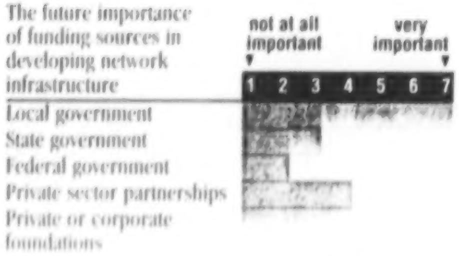
Funding sources and the percentage of funding from those sources used to develop infrastructure of existing educational telecommunications network *presented as a pie chart below*

Funding Proportions from Sources

Figures not provided

D Importance of Funding Sources and Future Expectations

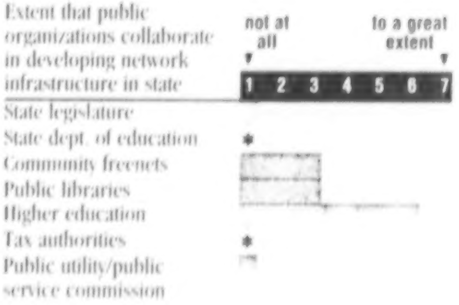
The future importance of funding sources in developing network infrastructure



Expectations about future funding from these sources	decrease	same	increase
Local government	*		
State government	*		
Federal government	*		
Private sector partnerships	*		
Private or corporate foundations	*		

E Government Collaboration in Infrastructure Development

Extent that public organizations collaborate in developing network infrastructure in state



The state's public utility/public service commission has established special tariffs for K-12 education
No

The significance of such tariffs for networking efforts for K-12 education
Somewhat significant

The impact the federal *Telecommunications Act of 1996* will have on state's network development
Positive impact

F Private Sector Collaboration in K-12 Network Development

Major telecommunications providers have established a program in the state to encourage network infrastructure building
No

Significance of such programs for networking efforts
Somewhat significant

Best way to establish relationships with telecommunications providers to develop state's telecommunications network infrastructure
No response recorded

* *"Don't know" response recorded*

G Current Status of Network Development and Use Statewide

Percent of school districts in state with local dial-up access
100%

Percent of school districts in state with toll-free dial-up access
100%

Percent of school districts in state with dedicated access
*

Percent of schools in state with a Web site
*

Percent of K–12 educators who have state-provided or subsidized access to telecommunications networks
*

Percent of K–12 educators who use these services
*

Percent of K–12 students who have state-provided or subsidized access to telecommunications networks
*

Percent of K–12 students who use these services
*

The state education network provides dial-up network access
Yes

How dial-up access is used
all that apply marked bold
Administrative functions at the district level*
Administrative functions at the campus level*
Classroom instruction
Student resource

The state education network provides dedicated network access
No

Current network development efforts in state are primarily directed at providing
response marked bold
Dial-up access
Dedicated access
Both dial-up and dedicated access

H Network Access 1995 and 1996 and Projected Access 1997

Type of Access	1995	1996	1997
Percent of local dial-up	100%	100%	100%
Percent of toll-free dial-up	*	100%	100%
Percent of dedicated access	*	*	*
Percent of local dial-up	*	100%	100%
Percent of toll-free dial-up	*	100%	*
Percent of dedicated access	*	*	*
Percent of local dial-up	*	100%	100%
Percent of toll-free dial-up	*	100%	100%
Percent of dedicated access	*	*	*

Percentages of state's school districts and the network access they used in spring 1995 and spring 1996 and projections for spring 1997

I State Initiatives Promoting Network Use

State has an initiative to integrate Web resources into state curriculum frameworks
Yes

State's education agency would consider adopting Web resources as textbooks
*

State has a safety-net initiative to provide underserved K–12 populations with Internet connectivity
Yes

State education agency currently has a Web site at
http://info.doe.mass.edu/

J State's Information Service Providers in the Public Sector

Sources in state that provide information services on public networks
all that apply marked bold
State legislature
Public utility/public service commission
State dept. of education
Community freenets
Public libraries
Higher education
Tax authorities*

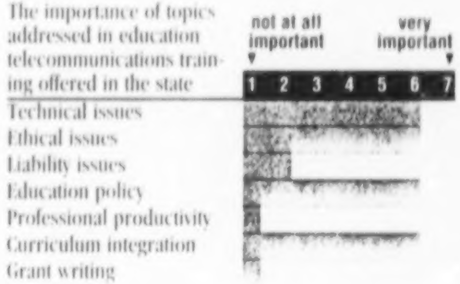
Other sources of public information networks
Massachusetts Office of Management Information Services

K Telecommunications Training Topics and Their Importance

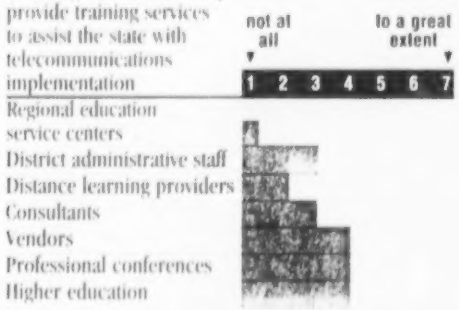
Topics currently addressed in education telecommunications training offered in the state
all that apply marked bold
Technical issues
Ethical issues
Liability issues*
Education policy
Professional productivity
Curriculum integration
Grant writing

Other topics addressed in training
No

The importance of topics addressed in education telecommunications training offered in the state



The extent to which the following sources currently provide training services to assist the state with telecommunications implementation



Other sources of training
No

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* "Don't know" response recorded

Michigan

A Demographics

Number of school districts
585

Number of school buildings
3,400

Number of K-12 teachers currently employed
80,000

Number of K-12 students currently enrolled
1,700,000

Number of students in district with largest enrollment
150,000

Number of students in district with smallest enrollment
3

Number of districts with fewer than 1,000 students
234

For Further Information

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20506dws@msu.edu
or
schultzd@mdenet.mde.state.mi.us
517-373-6331 (phone)
517-373-3325 (fax)

All information current in spring 1996

B Implementation of Telecommunications Plan

State has a long-range telecommunications plan for K-12 education
Yes

If not, state is developing one
NA

Existing K-12 plan is part of a larger, statewide plan
Yes

Percentage of existing K-12 plan currently completed
25–49%

Percentage of existing K-12 plan completed one year ago
Less than 25%

State is planning a NetDay to wire schools for Internet access
No

C Current Funding Sources for Network Development

Sources of funding currently available for the development of telecommunications infrastructure for education
all that apply marked bold
Local government
State government
Federal government
Private sector partnerships
Private or corporate foundations

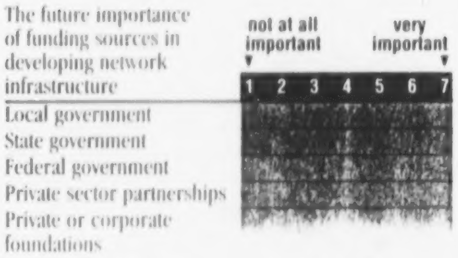
Other current sources of funding
For-fee basis

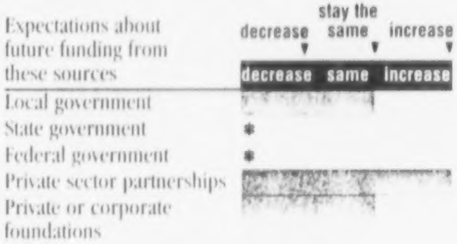
Funding sources and the percentage of funding from those sources used to develop infrastructure of existing educational telecommunications network
presented as a pie chart below

Funding Proportions from Sources

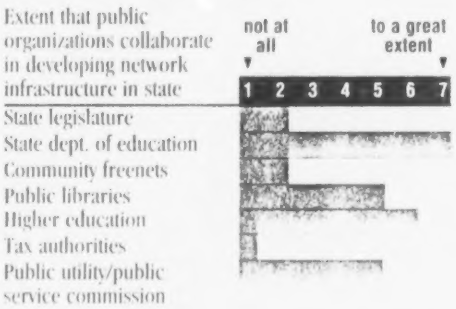
Figures not provided

D Importance of Funding Sources and Future Expectations


The future importance of funding sources in developing network infrastructure


Expectations about future funding from these sources

E Government Collaboration in Infrastructure Development


Extent that public organizations collaborate in developing network infrastructure in state

The state's public utility/public service commission has established special tariffs for K-12 education
No

The significance of such tariffs for networking efforts for K-12 education
*

The impact the federal *Telecommunications Act of 1996* will have on state's network development
No effect

F Private Sector Collaboration in K-12 Network Development

Major telecommunications providers have established a program in the state to encourage network infrastructure building
Yes

Specific providers
Ameritech Corporation, GTE

Parties that provided the incentives for establishing this program
The individual corporations combined with the telephone service of Michigan and the Michigan Public Service Commission

Significance of such programs for networking efforts
Very significant

Best way to establish relationships with telecommunications providers to develop state's telecommunications network infrastructure
"Forming partnerships and collaborations that involve local schools and individual buildings; formation of partnerships to the individual building, where instruction occurs."

** "Don't know" response recorded*

G Current Status of Network Development and Use Statewide

Percent of school districts in state with local dial-up access
*

Percent of school districts in state with toll-free dial-up access
*

Percent of school districts in state with dedicated access
*

Percent of schools in state with a Web site
5%

Percent of K-12 educators who have state-provided or subsidized access to telecommunications networks
0%

Percent of K-12 educators who use these services
0%

Percent of K-12 students who have state-provided or subsidized access to telecommunications networks
0%

Percent of K-12 students who use these services
0%

The state education network provides dial-up network access
Yes

How dial-up access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

The state education network provides dedicated network access
No

Current network development efforts in state are primarily directed at providing
response marked bold
Dial-up access
Dedicated access
Both dial-up and dedicated access

H Network Access 1995 and 1996 and Projected Access 1997

Type of Access	1995	1996	1997
Percent of local dial-up	*	100%	100%
Percent of toll-free dial-up	*	*	*
Percent of dedicated access	*	*	*
Percent of local dial-up	*	*	*
Percent of toll-free dial-up	*	*	*
Percent of dedicated access	*	*	*
Percent of local dial-up	*	*	*
Percent of toll-free dial-up	*	*	*
Percent of dedicated access	*	*	*

Percentages of state's school districts and the network access they used in spring 1995 and spring 1996 and projections for spring 1997

I State Initiatives Promoting Network Use

State has an initiative to integrate Web resources into state curriculum frameworks
Yes

State's education agency would consider adopting Web resources as textbooks
No

State has a safety-net initiative to provide underserved K-12 populations with Internet connectivity
No

State education agency currently has a Web site at
http://www.mde.state.mi.us/
Gopher server at
gopher://gopher.mde.state.mi.us/

J State's Information Service Providers in the Public Sector

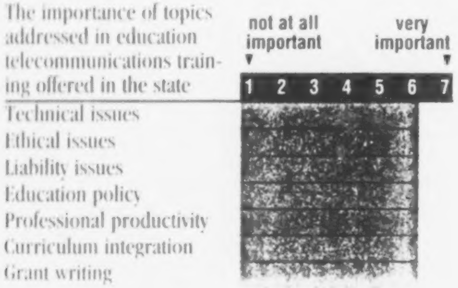
Sources in state that provide information services on public networks
all that apply marked bold
State legislature
Public utility/public service commission
State dept. of education
Community freenets
Public libraries
Higher education
Tax authorities

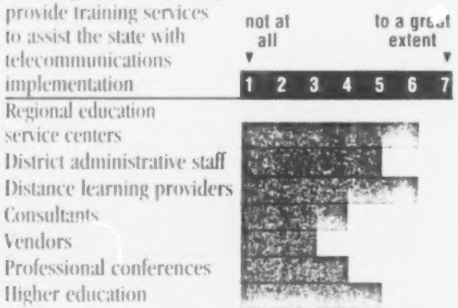
Other sources of public information networks
Nonprofit providers, Merit Network, Inc.

K Telecommunications Training Topics and Their Importance

Topics currently addressed in education telecommunications training offered in the state
all that apply marked bold
Technical issues
Ethical issues
Liability issues
Education policy
Professional productivity
Curriculum integration
Grant writing

Other topics addressed in training
No


The importance of topics addressed in education telecommunications training offered in the state


The extent to which the following sources currently provide training services to assist the state with telecommunications implementation

Other sources of training
No

---

* *"Don't know" response recorded*

Minnesota

A Demographics

Number of school districts
370

Number of school buildings
1,500

Number of K-12 teachers currently employed
48,000

Number of K-12 students currently enrolled
850,000

Number of students in district with largest enrollment
44,500

Number of students in district with smallest enrollment
70

Number of districts with fewer than 1,000 students
210

For Further Information

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St. Paul, Minnesota 55101
mark.manning@state.mn.us
612-297-3151 (phone)
612-297-1795 (fax)

All information current in spring 1996

B Implementation of Telecommunications Plan

State has a long-range telecommunications plan for K-12 education
Yes

If not, state is developing one
NA

Existing K-12 plan is part of a larger, statewide plan
Yes

Percentage of existing K-12 plan currently completed
Less than 25%

Percentage of existing K-12 plan completed one year ago
Less than 25%

State is planning a NetDay to wire schools for Internet access
*****

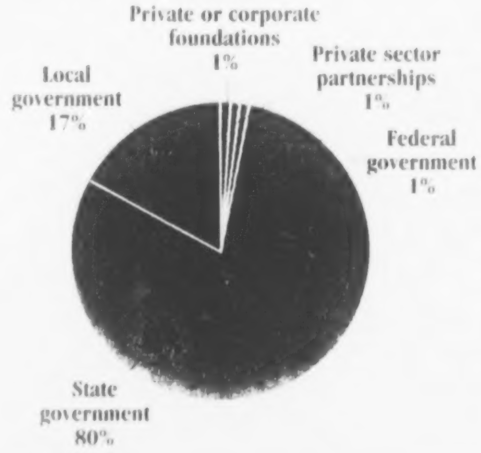
C Current Funding Sources for Network Development

Sources of funding currently available for the development of telecommunications infrastructure for education
all that apply marked bold
Local government
State government
Federal government
Private sector partnerships
Private or corporate foundations

Other current sources of funding
No

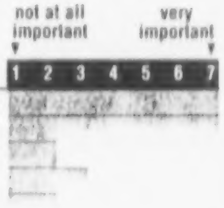
Funding sources and the percentage of funding from those sources used to develop infrastructure of existing educational telecommunications network
presented as a pie chart below

Funding Proportions from Sources

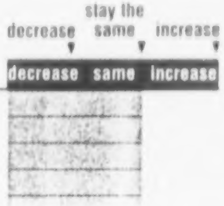


D Importance of Funding Sources and Future Expectations

The future importance of funding sources in developing network infrastructure

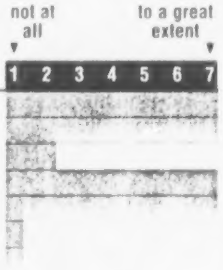


Expectations about future funding from these sources



E Government Collaboration in Infrastructure Development

Extent that public organizations collaborate in developing network infrastructure in state



The state's public utility/public service commission has established special tariffs for K-12 education
No

The significance of such tariffs for networking efforts for K-12 education
Very significant

The impact the federal *Telecommunications Act of 1996* will have on state's network development
Positive impact

F Private Sector Collaboration in K-12 Network Development

Major telecommunications providers have established a program in the state to encourage network infrastructure building
Yes

Specific providers
MEANS Independent Telecommunications Company of Minnesota

Parties that provided the incentives for establishing this program
MEANS Independent Telecommunications Company of Minnesota

Significance of such programs for networking efforts
Somewhat significant

Best way to establish relationships with telecommunications providers to develop state's telecommunications network infrastructure
"For the state to provide leadership in forming the business partnerships; collaboration between the Department of Children, Families, and Learning [Minnesota's state education agency] and the Department of Administration."

* *"Don't know" response recorded*

BEST COPY AVAILABLE

G Current Status of Network Development and Use Statewide

Percent of school districts in state with local dial-up access
32%

Percent of school districts in state with toll-free dial-up access
68%

Percent of school districts in state with dedicated access
20%

Percent of schools in state with a Web site
5%

Percent of K-12 educators who have state-provided or subsidized access to telecommunications networks
100%

Percent of K-12 educators who use these services
8%

Percent of K-12 students who have state-provided or subsidized access to telecommunications networks
100%

Percent of K-12 students who use these services
10%

The state education network provides dial-up network access
Yes

How dial-up access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level*
Classroom instruction
Student resource

The state education network provides dedicated network access
Yes

How dedicated access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

Current network development efforts in state are primarily directed at providing
response marked bold
Dial-up access
Dedicated access
Both dial-up and dedicated access

"Don't know" response recorded

H Network Access 1995 and 1996 and Projected Access 1997

Type of Access	1995	1996	1997
Percent of local dial-up	13%	32%	*
Percent of toll-free dial-up	87%	68%	*
Percent of dedicated access	10%	20%	*
Percent of local dial-up	100%	100%	*
Percent of toll-free dial-up	0%	0%	0%
Percent of dedicated access	30%	90%	*
Percent of local dial-up	0%	21%	*
Percent of toll-free dial-up	100%	78%	*
Percent of dedicated access	5%	10%	80%

Percentages of state's school districts and the network access they used in spring 1995 and spring 1996 and projections for spring 1997

I State Initiatives Promoting Network Use

State has an initiative to integrate Web resources into state curriculum frameworks
Yes

State's education agency would consider adopting Web resources as textbooks
Yes

State has a safety-net initiative to provide underserved K-12 populations with Internet connectivity
Yes

State education agency currently has a Web site at
http://www.educ.state.mn.us/

J State's Information Service Providers in the Public Sector

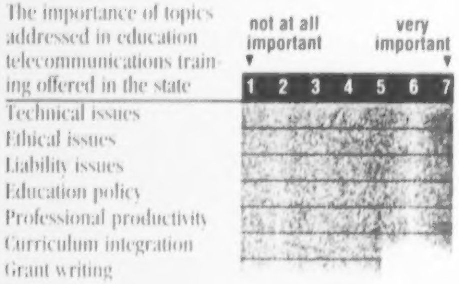
Sources in state that provide information services on public networks
all that apply marked bold
State legislature
Public utility/public service commission
State dept. of education
Community freenets
Public libraries
Higher education
Tax authorities

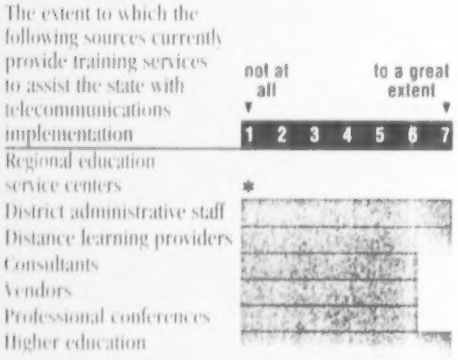
Other sources of public information networks
No

K Telecommunications Training Topics and Their Importance

Topics currently addressed in education telecommunications training offered in the state
all that apply marked bold
Technical issues
Ethical issues
Liability issues
Education policy*
Professional productivity
Curriculum integration
Grant writing*

Other topics addressed in training
No





Other sources of training
Service cooperatives

MS

Mississippi

A Demographics

Number of school districts
153

Number of school buildings
1,150

Number of K-12 teachers currently employed
35,000

Number of K-12 students currently enrolled
502,000

Number of students in district with largest enrollment
35,000

Number of students in district with smallest enrollment
200

Number of districts with fewer than 1,000 students
40

For Further Information

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601-359-2027 (fax)

All information current in spring 1996

B Implementation of Telecommunications Plan

State has a long-range telecommunications plan for K-12 education
Yes

If not, state is developing one
NA

Existing K-12 plan is part of a larger, statewide plan
Yes

Percentage of existing K-12 plan currently completed
Less than 25%

Percentage of existing K-12 plan completed one year ago
Less than 25%

State is planning a NetDay to wire schools for Internet access
No

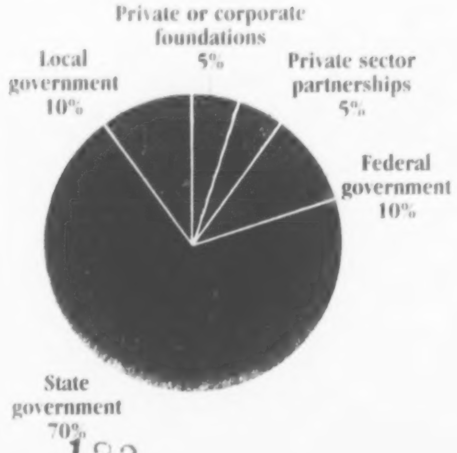
C Current Funding Sources for Network Development

Sources of funding currently available for the development of telecommunications infrastructure for education
all that apply marked bold
Local government
State government
Federal government
Private sector partnerships
Private or corporate foundations

Other current sources of funding
No

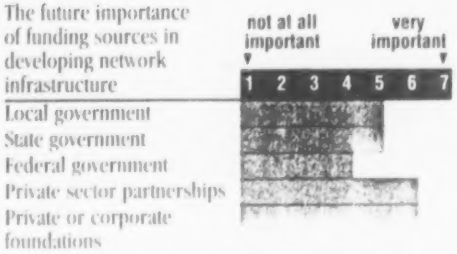
Funding sources and the percentage of funding from those sources used to develop infrastructure of existing educational telecommunications network
presented as a pie chart below

Funding Proportions from Sources

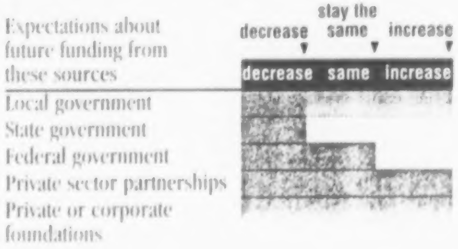


D Importance of Funding Sources and Future Expectations

The future importance of funding sources in developing network infrastructure

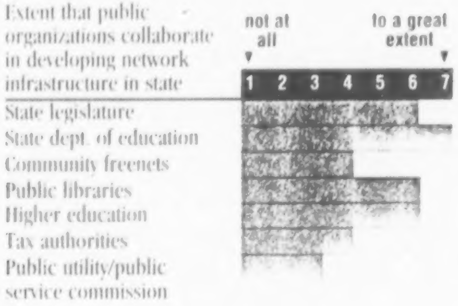


Expectations about future funding from these sources



E Government Collaboration in Infrastructure Development

Extent that public organizations collaborate in developing network infrastructure in state



The state's public utility/public service commission has established special tariffs for K-12 education
Yes

The significance of such tariffs for networking efforts for K-12 education
Very significant

The impact the federal *Telecommunications Act of 1996* will have on state's network development
Positive impact

F Private Sector Collaboration in K-12 Network Development

Major telecommunications providers have established a program in the state to encourage network infrastructure building
Yes

Specific providers
BellSouth Corporation

Parties that provided the incentives for establishing this program
State legislature

Significance of such programs for networking efforts
Very significant

Best way to establish relationships with telecommunications providers to develop state's telecommunications network infrastructure
"By meeting biweekly with providers and capable and responsible people who make financial decisions. Build as many partnerships as possible with the community; real people—parents and business-people—have more impact on providers and add to bargaining power."

*"Don't know" response recorded

G Current Status of Network Development and Use Statewide

Percent of school districts in state with local dial-up access
15%

Percent of school districts in state with toll-free dial-up access
2%

Percent of school districts in state with dedicated access
10%

Percent of schools in state with a Web site
23%

Percent of K-12 educators who have state-provided or subsidized access to telecommunications networks
12%

Percent of K-12 educators who use these services
8%

Percent of K-12 students who have state-provided or subsidized access to telecommunications networks
8%

Percent of K-12 students who use these services
6%

The state education network provides dial-up network access
Yes

How dial-up access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

The state education network provides dedicated network access
Yes

How dedicated access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

Current network development efforts in state are primarily directed at providing
response marked bold
Dial-up access
Dedicated access
Both dial-up and dedicated access

"Don't know" response recorded

H Network Access 1995 and 1996 and Projected Access 1997

Type of Access	1995	1996	1997
Percent of local dial-up	2%	15%	100%
Percent of toll-free dial-up	0%	2%	3%
Percent of dedicated access	5%	10%	80%
Percent of local dial-up	30%	70%	100%
Percent of toll-free dial-up	2%	5%	5%
Percent of dedicated access	20%	40%	90%
Percent of local dial-up	10%	20%	95%
Percent of toll-free dial-up	0%	2%	4%
Percent of dedicated access	2%	4%	95%

Percentages of state's school districts and the network access they used in spring 1995 and spring 1996 and projections for spring 1997

I State Initiatives Promoting Network Use

State has an initiative to integrate Web resources into state curriculum frameworks
No

State's education agency would consider adopting Web resources as textbooks
Yes

State has a safety-net initiative to provide underserved K-12 populations with Internet connectivity
Yes

State education agency currently has a Web site at
http://mdek12.state.ms.us/

J State's Information Service Providers in the Public Sector

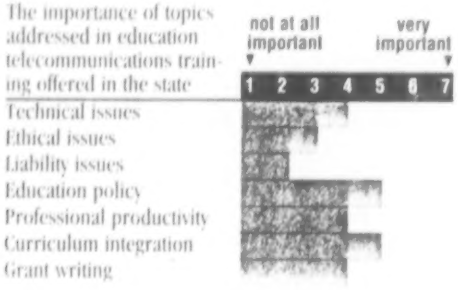
Sources in state that provide information services on public networks
all that apply marked bold
State legislature
Public utility/public service commission
State dept. of education
Community freenets
Public libraries
Higher education
Tax authorities

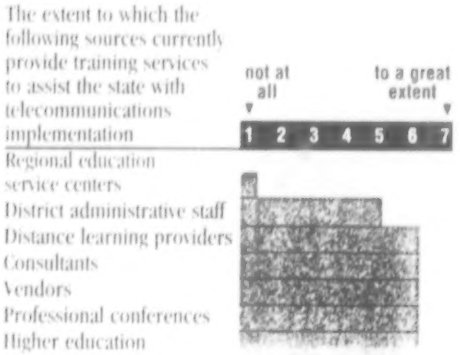
Other sources of public information networks
No

K Telecommunications Training Topics and Their Importance

Topics currently addressed in education telecommunications training offered in the state
all that apply marked bold
Technical issues
Ethical issues
Liability issues
Education policy
Professional productivity
Curriculum integration
Grant writing

Other topics addressed in training
No


The importance of topics addressed in education telecommunications training offered in the state


The extent to which the following sources currently provide training services to assist the state with telecommunications implementation

Other sources of training
No

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A Demographics

Number of school districts
525

Number of school buildings
2,500

Number of K-12 teachers currently employed
57,000

Number of K-12 students currently enrolled
860,000

Number of students in district with largest enrollment
19,000

Number of students in district with smallest enrollment
40

Number of districts with fewer than 1,000 students
475

For Further Information

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314-751-9038 (phone)
314-751-9434 (fax)

All information current in spring 1996

B Implementation of Telecommunications Plan

State has a long-range telecommunications plan for K-12 education
No

If not, state is developing one
No

Existing K-12 plan is part of a larger, statewide plan
NA

Percentage of existing K-12 plan currently completed
NA

Percentage of existing K-12 plan completed one year ago
NA

State is planning a NetDay to wire schools for Internet access
No

C Current Funding Sources for Network Development

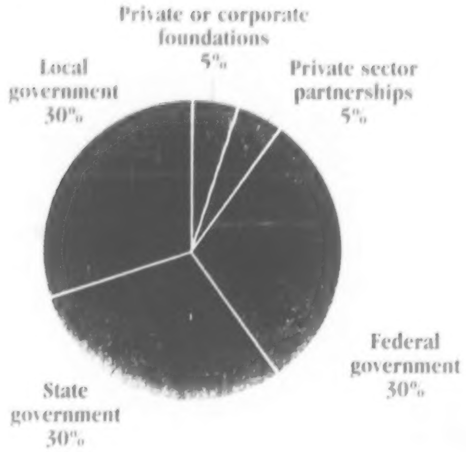
Sources of funding currently available for the development of telecommunications infrastructure for education
all that apply marked bold

Local government
State government
Federal government
Private sector partnerships
Private or corporate foundations

Other current sources of funding
No

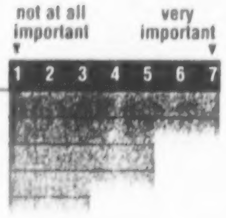
Funding sources and the percentage of funding from those sources used to develop infrastructure of existing educational telecommunications network
presented as a pie chart below

Funding Proportions from Sources



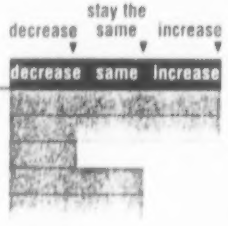
D Importance of Funding Sources and Future Expectations

The future importance of funding sources in developing network infrastructure



Local government
State government
Federal government
Private sector partnerships
Private or corporate foundations

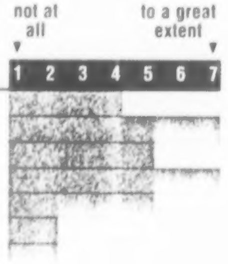
Expectations about future funding from these sources



Local government
State government
Federal government
Private sector partnerships
Private or corporate foundations

E Government Collaboration in Infrastructure Development

Extent that public organizations collaborate in developing network infrastructure in state



State legislature
State dept. of education
Community freenets
Public libraries
Higher education
Tax authorities
Public utility/public service commission

The state's public utility/public service commission has established special tariffs for K-12 education
No

The significance of such tariffs for networking efforts for K-12 education
Very significant

The impact the federal *Telecommunications Act of 1996* will have on state's network development
Positive impact

F Private Sector Collaboration in K-12 Network Development

Major telecommunications providers have established a program in the state to encourage network infrastructure building
Yes

Specific providers
Southwestern Bell Telephone

Parties that provided the incentives for establishing this program
Missouri Public Service Commission

Significance of such programs for networking efforts
Somewhat significant

Best way to establish relationships with telecommunications providers to develop state's telecommunications network infrastructure
"The best way to establish relationships is constant dialogue about the significance of the education market."

---

*"Don't know" response recorded

G Current Status of Network Development and Use Statewide

Percent of school districts in state with local dial-up access
20%

Percent of school districts in state with toll-free dial-up access
75%

Percent of school districts in state with dedicated access
50%

Percent of schools in state with a Web site
5%

Percent of K-12 educators who have state-provided or subsidized access to telecommunications networks
50%

Percent of K-12 educators who use these services
25%

Percent of K-12 students who have state-provided or subsidized access to telecommunications networks
30%

Percent of K-12 students who use these services
30%

The state education network provides dial-up network access
Yes

How dial-up access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

The state education network provides dedicated network access
Yes

How dedicated access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

Current network development efforts in state are primarily directed at providing
response marked bold
Dial-up access
Dedicated access
Both dial-up and dedicated access

H Network Access 1995 and 1996 and Projected Access 1997

Type of Access	1995	1996	1997
Percent of local dial-up	20%	20%	40%
Percent of toll-free dial-up	50%	75%	90%
Percent of dedicated access	35%	50%	75%
Percent of local dial-up	60%	85%	90%
Percent of toll-free dial-up	50%	75%	75%
Percent of dedicated access	50%	75%	85%
Percent of local dial-up	15%	30%	50%
Percent of toll-free dial-up	30%	50%	50%
Percent of dedicated access	30%	50%	60%

Percentages of state's school districts and the network access they used in spring 1995 and spring 1996 and projections for spring 1997

I State Initiatives Promoting Network Use

State has an initiative to integrate Web resources into state curriculum frameworks
Yes

State's education agency would consider adopting Web resources as textbooks
No

State has a safety-net initiative to provide underserved K-12 populations with Internet connectivity
Yes

State education agency currently has a Web site at
http://www.services.dese.state.mo.us/

J State's Information Service Providers in the Public Sector

Sources in state that provide information services on public networks
all that apply marked bold
State legislature
Public utility/public service commission
State dept. of education
Community freenets
Public libraries
Higher education
Tax authorities

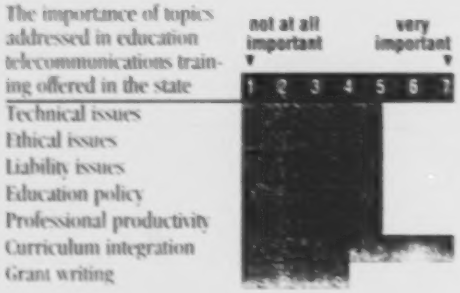
Other sources of public information networks
No

K Telecommunications Training Topics and Their Importance

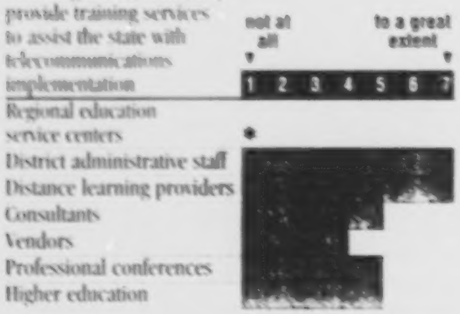
Topics currently addressed in education telecommunications training offered in the state
all that apply marked bold
Technical issues
Ethical issues
Liability issues
Education policy
Professional productivity
Curriculum integration
Grant writing

Other topics addressed in training
No

The importance of topics addressed in education telecommunications training offered in the state



The extent to which the following sources currently provide training services to assist the state with telecommunications implementation



Other sources of training
No

---

* "Don't know" response recorded

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Montana

A Demographics

Number of school districts
586

Number of school buildings
950

Number of K-12 teachers currently employed
*****

Number of K-12 students currently enrolled
164,341

Number of students in district with largest enrollment
16,058

Number of students in district with smallest enrollment
3

Number of districts with fewer than 1,000 students
490

For Further Information

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Helena, Montana 59620-2501
smeredith@metnet.mt.gov
406-444-3563 (phone)
406-444-1369 (fax)

All information current in spring 1996

B Implementation of Telecommunications Plan

State has a long-range telecommunications plan for K-12 education
Yes

If not, state is developing one
NA

Existing K-12 plan is part of a larger, statewide plan
Yes

Percentage of existing K-12 plan currently completed
Less than 25%

Percentage of existing K-12 plan completed one year ago
Less than 25%

State is planning a NetDay to wire schools for Internet access
Yes

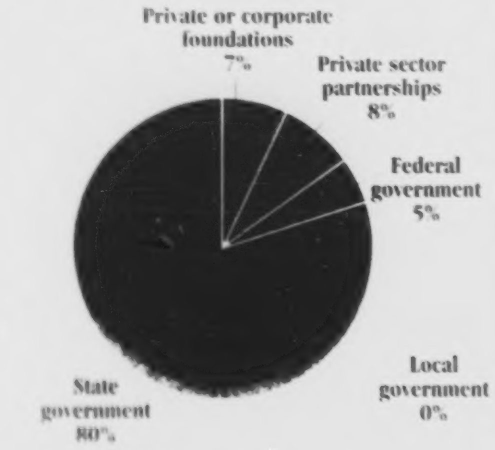
C Current Funding Sources for Network Development

Sources of funding currently available for the development of telecommunications infrastructure for education
all that apply marked bold
Local government
State government
Federal government
Private sector partnerships
Private or corporate foundations

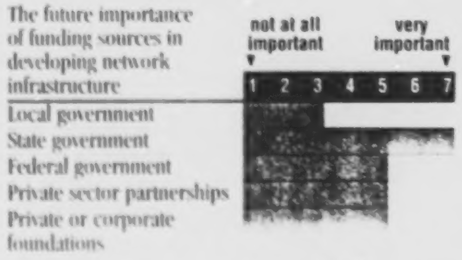
Other current sources of funding
No

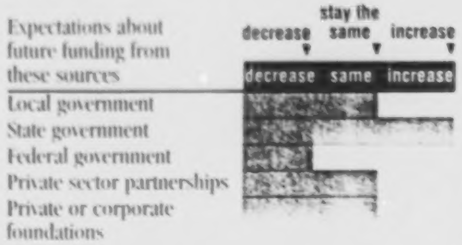
Funding sources and the percentage of funding from those sources used to develop infrastructure of existing educational telecommunications network
presented as a pie chart below

Funding Proportions from Sources

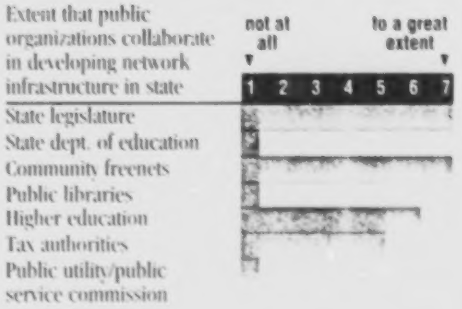


D Importance of Funding Sources and Future Expectations





E Government Collaboration in Infrastructure Development



The state's public utility/public service commission has established special tariffs for K-12 education
No

The significance of such tariffs for networking efforts for K-12 education
Very significant

The impact the federal *Telecommunications Act of 1996* will have on state's network development
Positive impact

F Private Sector Collaboration in K-12 Network Development

Major telecommunications providers have established a program in the state to encourage network infrastructure building
No

Significance of such programs for networking efforts
Very significant

Best way to establish relationships with telecommunications providers to develop state's telecommunications network infrastructure
"The best way is to get all the schools together and speak with one voice, to be heard. Show [telecommunications providers] that we are one entity. Then they'll pay attention to us."

*"Don't know" response recorded

G Current Status of Network Development and Use Statewide

Percent of school districts in state with local dial-up access
1%

Percent of school districts in state with toll-free dial-up access
90%

Percent of school districts in state with dedicated access
2%

Percent of schools in state with a Web site
1%

Percent of K-12 educators who have state-provided or subsidized access to telecommunications networks
80%

Percent of K-12 educators who use these services
20%

Percent of K-12 students who have state-provided or subsidized access to telecommunications networks
20%

Percent of K-12 students who use these services
15%

The state education network provides dial-up network access
Yes

How dial-up access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

The state education network provides dedicated network access
No

Current network development efforts in state are primarily directed at providing
response marked bold
Dial-up access
Dedicated access
Both dial-up and dedicated access

* "Don't know" response recorded

H Network Access 1995 and 1996 and Projected Access 1997

Type of Access	1995	1996	1997
Percent of local dial-up	1%	1%	5%
Percent of toll-free dial-up	90%	90%	90%
Percent of dedicated access	1%	2%	5%
Percent of local dial-up	30%	85%	100%
Percent of toll-free dial-up	90%	90%	90%
Percent of dedicated access	20%	70%	90%
Percent of local dial-up	0%	3%	10%
Percent of toll-free dial-up	90%	90%	90%
Percent of dedicated access	0%	0%	3%

Percentages of state's school districts and the network access they used in spring 1995 and spring 1996 and projections for spring 1997

I State Initiatives Promoting Network Use

State has an initiative to integrate Web resources into state curriculum frameworks
Yes

State's education agency would consider adopting Web resources as textbooks
Yes

State has a safety-net initiative to provide underserved K-12 populations with Internet connectivity
Yes

State education agency currently has a Web site at
http://161.7.114.15/opi/opi.html

J State's Information Service Providers in the Public Sector

Sources in state that provide information services on public networks
all that apply marked bold
State legislature
Public utility/public service commission
State dept. of education
Community freenets
Public libraries
Higher education
Tax authorities

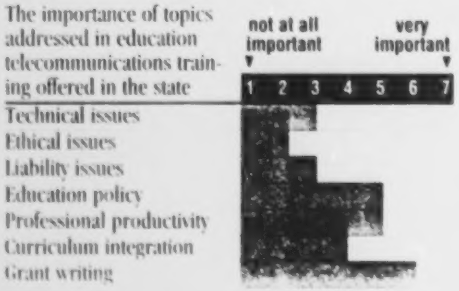
Other sources of public information networks
Natural Resources Department, Information Systems

K Telecommunications Training Topics and Their Importance

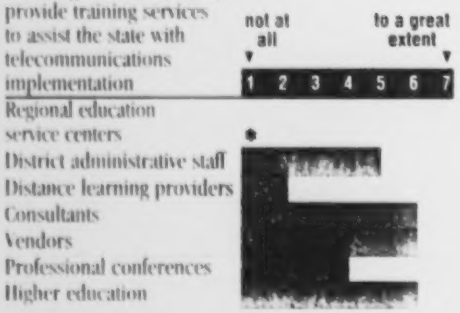
Topics currently addressed in education telecommunications training offered in the state
all that apply marked bold
Technical issues
Ethical issues
Liability issues
Education policy
Professional productivity
Curriculum integration
Grant writing

Other topics addressed in training
No

The importance of topics addressed in education telecommunications training offered in the state



The extent to which the following sources currently provide training services to assist the state with telecommunications implementation



Other sources of training
No

NB

Nebraska

A Demographics

Number of school districts
700

Number of school buildings
1,100

Number of K-12 teachers currently employed
25,000

Number of K-12 students currently enrolled
350,000

Number of students in district with largest enrollment
50,000

Number of students in district with smallest enrollment
1

Number of districts with fewer than 1,000 students
650

For Further Information

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402-471-2085 (phone)
402-471-2701 (fax)

All information current in spring 1996

B Implementation of Telecommunications Plan

State has a long-range telecommunications plan for K-12 education
Yes

If not, state is developing one
NA

Existing K-12 plan is part of a larger, statewide plan
Yes

Percentage of existing K-12 plan currently completed
50–74%

Percentage of existing K-12 plan completed one year ago
25–49%

State is planning a NetDay to wire schools for Internet access
No

C Current Funding Sources for Network Development

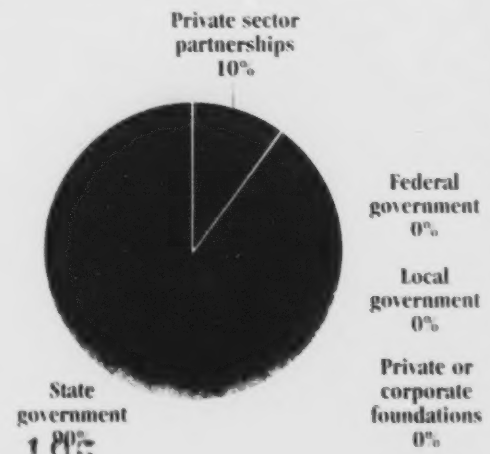
Sources of funding currently available for the development of telecommunications infrastructure for education
all that apply marked bold

Local government
State government
Federal government
Private sector partnerships
Private or corporate foundations

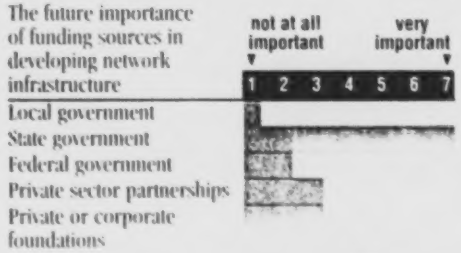
Other current sources of funding
No

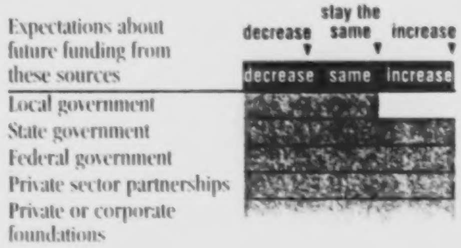
Funding sources and the percentage of funding from those sources used to develop infrastructure of existing educational telecommunications network
presented as a pie chart below

Funding Proportions from Sources

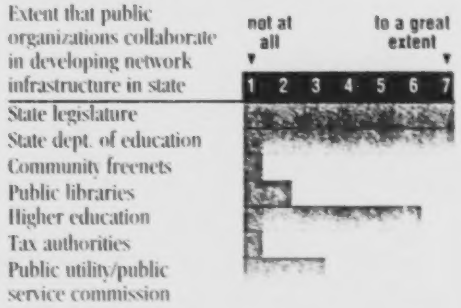


D Importance of Funding Sources and Future Expectations





E Government Collaboration in Infrastructure Development



The state's public utility/public service commission has established special tariffs for K-12 education
No

The significance of such tariffs for networking efforts for K-12 education
Not at all significant

The impact the federal *Telecommunications Act of 1996* will have on state's network development
Positive impact

F Private Sector Collaboration in K-12 Network Development

Major telecommunications providers have established a program in the state to encourage network infrastructure building
No

Significance of such programs for networking efforts
Not too significant

Best way to establish relationships with telecommunications providers to develop state's telecommunications network infrastructure
"Face-to-face communication—education representatives and telecom management people sitting down together."

**"Don't know" response recorded*

G Current Status of Network Development and Use Statewide

Percent of school districts in state with local dial-up access
10%

Percent of school districts in state with toll-free dial-up access
2%

Percent of school districts in state with dedicated access
20%

Percent of schools in state with a Web site
10%

Percent of K-12 educators who have state-provided or subsidized access to telecommunications networks
85%

Percent of K-12 educators who use these services
40%

Percent of K-12 students who have state-provided or subsidized access to telecommunications networks
5%

Percent of K-12 students who use these services
5%

The state education network provides dial-up network access
Yes

How dial-up access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

The state education network provides dedicated network access
Yes

How dedicated access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

Current network development efforts in state are primarily directed at providing
response marked bold
Dial-up access
Dedicated access
Both dial-up and dedicated access

*"Don't know" response recorded

H Network Access 1995 and 1996 and Projected Access 1997

Type of Access	1995	1996	1997
Percent of local dial-up	5%	10%	50%
Percent of toll-free dial-up	5%	2%	0%
Percent of dedicated access	10%	20%	50%
Percent of local dial-up	100%	100%	100%
Percent of toll-free dial-up	0%	0%	0%
Percent of dedicated access	50%	75%	95%
Percent of local dial-up	1%	2%	30%
Percent of toll-free dial-up	5%	2%	0%
Percent of dedicated access	1%	2%	30%

Percentages of state's school districts and the network access they used in spring 1995 and spring 1996 and projections for spring 1997

I State Initiatives Promoting Network Use

State has an initiative to integrate Web resources into state curriculum frameworks
Yes

State's education agency would consider adopting Web resources as textbooks
Yes

State has a safety-net initiative to provide underserved K-12 populations with Internet connectivity
Yes

State education agency currently has a Web site at
http://www.nde.state.ne.us/

J State's Information Service Providers in the Public Sector

Sources in state that provide information services on public networks
all that apply marked bold
State legislature
Public utility/public service commission
State dept. of education
Community freenets
Public libraries
Higher education
Tax authorities

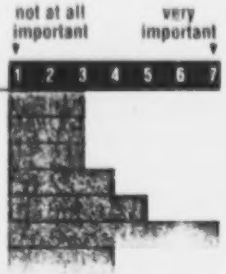
Other sources of public information networks
Nebraska state [agencies]: Parks Commission, Economic Development Department, Library Commission, and many other state agencies

K Telecommunications Training Topics and Their Importance

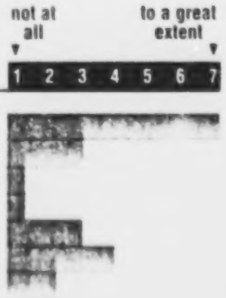
Topics currently addressed in education telecommunications training offered in the state
all that apply marked bold
Technical issues
Ethical issues
Liability issues
Education policy
Professional productivity
Curriculum integration
Grant writing*

Other topics addressed in training
No

The importance of topics addressed in education telecommunications training offered in the state



The extent to which the following sources currently provide training services to assist the state with telecommunications implementation



Other sources of training
Corporate partners

NV

Nevada

A Demographics

Number of school districts
17

Number of school buildings
413

Number of K-12 teachers currently employed
13,685

Number of K-12 students currently enrolled
265,041

Number of students in district with largest enrollment
166,788

Number of students in district with smallest enrollment
125

Number of districts with fewer than 1,000 students
4

For Further Information

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Nevada Dept. of Education
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702-687-9101 (fax)

All information current in spring 1996

B Implementation of Telecommunications Plan

State has a long-range telecommunications plan for K-12 education
Yes

If not, state is developing one
NA

Existing K-12 plan is part of a larger, statewide plan
Yes

Percentage of existing K-12 plan currently completed
25–49%

Percentage of existing K-12 plan completed one year ago
Less than 25%

State is planning a NetDay to wire schools for Internet access
No

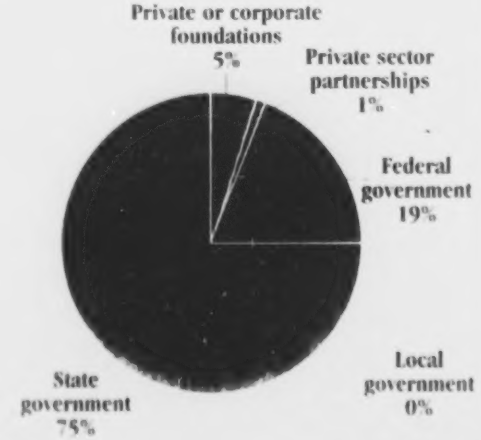
C Current Funding Sources for Network Development

Sources of funding currently available for the development of telecommunications infrastructure for education
all that apply marked bold
Local government
State government
Federal government
Private sector partnerships
Private or corporate foundations

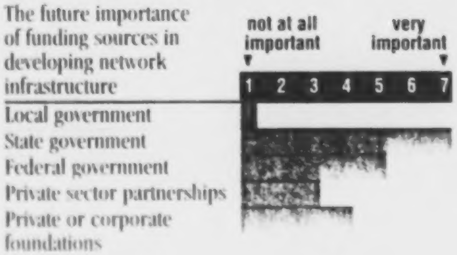
Other current sources of funding
No

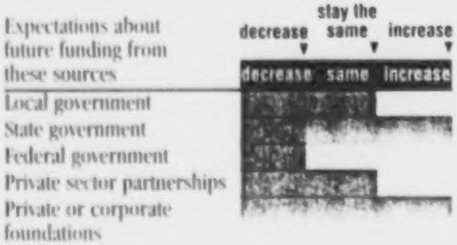
Funding sources and the percentage of funding from those sources used to develop infrastructure of existing educational telecommunications network
presented as a pie chart below

Funding Proportions from Sources

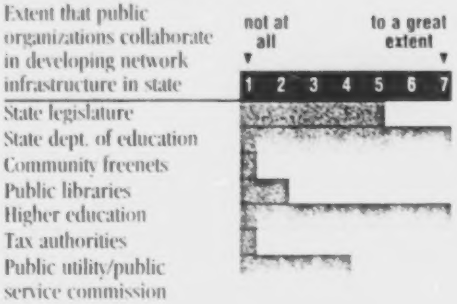


D Importance of Funding Sources and Future Expectations





E Government Collaboration in Infrastructure Development



The state's public utility/public service commission has established special tariffs for K-12 education
No

The significance of such tariffs for networking efforts for K-12 education
Very significant

The impact the federal *Telecommunications Act of 1996* will have on state's network development
Positive impact

F Private Sector Collaboration in K-12 Network Development

Major telecommunications providers have established a program in the state to encourage network infrastructure building
Yes

Specific providers
Nevada Bell

Parties that provided the incentives for establishing this program
"U.S. government passing legislation" [i.e., the* Telecommunications Act of 1996*]

Significance of such programs for networking efforts
Very significant

Best way to establish relationships with telecommunications providers to develop state's telecommunications network infrastructure
"We've had success working with state-level task forces working with providers; [having] representatives from all the private providers on the task forces has worked for us."

*"Don't know" response recorded

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G Current Status of Network Development and Use Statewide

Percent of school districts in state with local dial-up access
31%

Percent of school districts in state with toll-free dial-up access
0%

Percent of school districts in state with dedicated access
1%

Percent of schools in state with a Web site
0%

Percent of K-12 educators who have state-provided or subsidized access to telecommunications networks
100%

Percent of K-12 educators who use these services
30%

Percent of K-12 students who have state-provided or subsidized access to telecommunications networks
100%

Percent of K-12 students who use these services
10%

The state education network provides dial-up network access
Yes

How dial-up access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

The state education network provides dedicated network access
Yes

How dedicated access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

Current network development efforts in state are primarily directed at providing
response marked bold
Dial-up access
Dedicated access
Both dial-up and dedicated access

*"Don't know" response recorded

H Network Access 1995 and 1996 and Projected Access 1997

Type of Access	1995	1996	1997
Percent of local dial-up	25%	31%	100%
Percent of toll-free dial-up	0%	0%	20%
Percent of dedicated access	0%	1%	20%
Percent of local dial-up	100%	100%	100%
Percent of toll-free dial-up	0%	0%	0%
Percent of dedicated access	0%	0%	33%
Percent of local dial-up	75%	90%	100%
Percent of toll-free dial-up	0%	0%	20%
Percent of dedicated access	14%	16%	20%

Percentages of state's school districts and the network access they used in spring 1995 and spring 1996 and projections for spring 1997

I State Initiatives Promoting Network Use

State has an initiative to integrate Web resources into state curriculum frameworks
Yes

State's education agency would consider adopting Web resources as textbooks
Yes

State has a safety-net initiative to provide underserved K-12 populations with Internet connectivity
Yes

State education agency currently has a Web site at
http://nsn.scs.unr.edu/nvdoe/

J State's Information Service Providers in the Public Sector

Sources in state that provide information services on public networks
all that apply marked bold
State legislature
Public utility/public service commission
State dept. of education
Community freenets
Public libraries
Higher education
Tax authorities

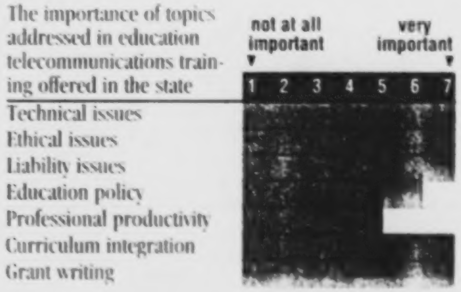
Other sources of public information networks
A school district

K Telecommunications Training Topics and Their Importance

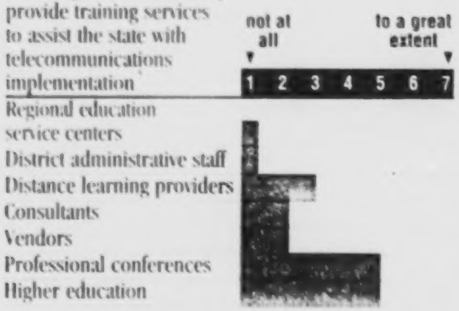
Topics currently addressed in education telecommunications training offered in the state
all that apply marked bold
Technical issues
Ethical issues
Liability issues
Education policy
Professional productivity
Curriculum integration
Grant writing

Other topics addressed in training
No

The importance of topics addressed in education telecommunications training offered in the state



The extent to which the following sources currently provide training services to assist the state with telecommunications implementation



Other sources of training
Nevada department of education

New Hampshire

NH

A Demographics

Number of school districts
161

Number of school buildings
430

Number of K-12 teachers currently employed
12,000

Number of K-12 students currently enrolled
200,000

Number of students in district with largest enrollment
12,000

Number of students in district with smallest enrollment
60

Number of districts with fewer than 1,000 students
100

For Further Information

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All information current in spring 1996

B Implementation of Telecommunications Plan

State has a long-range telecommunications plan for K-12 education
No

If not, state is developing one
No

Existing K-12 plan is part of a larger, statewide plan
NA

Percentage of existing K-12 plan currently completed
NA

Percentage of existing K-12 plan completed one year ago
NA

State is planning a NetDay to wire schools for Internet access
No

Figures not provided

NA response given

C Current Funding Sources for Network Development

Sources of funding currently available for the development of telecommunications infrastructure for education
all that apply marked bold
Local government
State government
Federal government
Private sector partnerships
Private or corporate foundations

Other current sources of funding
No

Funding sources and the percentage of funding from those sources used to develop infrastructure of existing educational telecommunications network
presented as a pie chart below

D Importance of Funding Sources and Future Expectations

The future importance of funding sources in developing network infrastructure	1 (not at all important)	2	3	4	5	6	7 (very important)
Local government							
State government							
Federal government							
Private sector partnerships							
Private or corporate foundations	*						

Expectations about future funding from these sources	decrease	stay the same	increase
Local government	NA		
State government	NA		
Federal government	NA		
Private sector partnerships	NA		
Private or corporate foundations	NA		

E Government Collaboration in Infrastructure Development

Extent that public organizations collaborate in developing network infrastructure in state	1 (not at all)	2	3	4	5	6	7 (to a great extent)
State legislature	*						
State dept. of education	*						
Community freenets	*						
Public libraries	*						
Higher education	*						
Tax authorities	*						
Public utility/public service commission	*						

The state's public utility/public service commission has established special tariffs for K-12 education
No

The significance of such tariffs for networking efforts for K-12 education
*

The impact the federal *Telecommunications Act of 1996* will have on state's network development
Positive impact

F Private Sector Collaboration in K-12 Network Development

Major telecommunications providers have established a program in the state to encourage network infrastructure building
No

Significance of such programs for networking efforts
*

Best way to establish relationships with telecommunications providers to develop state's telecommunications network infrastructure
"Through supportive rate structures, such as tariffs, etc."

*"Don't know" response recorded

G Current Status of Network Development and Use Statewide

Percent of school districts in state with local dial-up access
0%

Percent of school districts in state with toll-free dial-up access
0%

Percent of school districts in state with dedicated access
0%

Percent of schools in state with a Web site
*

Percent of K-12 educators who have state-provided or subsidized access to telecommunications networks
0%

Percent of K-12 educators who use these services
0%

Percent of K-12 students who have state-provided or subsidized access to telecommunications networks
0%

Percent of K-12 students who use these services
0%

The state education network provides dial-up network access
No
"The state has no plans to construct a network. NHTIE, a state and business partnership, is providing assistance to schools wishing to connect to the Internet. Training, software, and some hardware has been provided."

The state education network provides dedicated network access
No
"The state has no plans to construct a network."

Current network development efforts in state are primarily directed at providing
response marked bold
Dial-up access*
Dedicated access*
Both dial-up and dedicated access*

H Network Access 1995 and 1996 and Projected Access 1997

Type of Access	1995	1996	1997
Percent of local dial-up	0%	0%	0%
Percent of toll-free dial-up	0%	0%	0%
Percent of dedicated access	0%	0%	0%
Percent of local dial-up	0%	0%	0%
Percent of toll-free dial-up	0%	0%	0%
Percent of dedicated access	0%	0%	0%
Percent of local dial-up	0%	0%	0%
Percent of toll-free dial-up	0%	0%	0%
Percent of dedicated access	0%	0%	0%

Percentages of state's school districts and the network access they used in spring 1995 and spring 1996 and projections for spring 1997

I State Initiatives Promoting Network Use

State has an initiative to integrate Web resources into state curriculum frameworks
Yes

State's education agency would consider adopting Web resources as textbooks
No

State has a safety-net initiative to provide underserved K-12 populations with Internet connectivity
No

State education agency currently has a Web site at
http://www.state.nh.us/doe/education.html

J State's Information Service Providers in the Public Sector

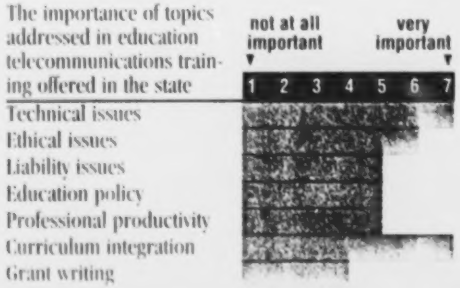
Sources in state that provide information services on public networks
all that apply marked bold
State legislature*
Public utility/public service commission*
State dept. of education*
Community freenets*
Public libraries*
Higher education*
Tax authorities*

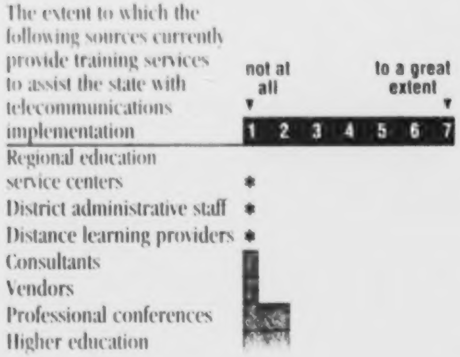
Other sources of public information networks
*

K Telecommunications Training Topics and Their Importance

Topics currently addressed in education telecommunications training offered in the state
all that apply marked bold
Technical issues
Ethical issues*
Liability issues*
Education policy*
Professional productivity*
Curriculum integration*
Grant writing*

Other topics addressed in training
*





Other sources of training
No

---

* "Don't know" response recorded

205

206

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A Demographics

Number of school districts
594

Number of school buildings
2,296

Number of K-12 teachers currently employed
83,478

Number of K-12 students currently enrolled
1,174,252

Number of students in district with largest enrollment
44,876

Number of students in district with smallest enrollment
97

Number of districts with fewer than 1,000 students
*****

For Further Information

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609-663-9865 (fax)

All information current in spring 1996

B Implementation of Telecommunications Plan

State has a long-range telecommunications plan for K-12 education
Yes

If not, state is developing one
NA

Existing K-12 plan is part of a larger, statewide plan
Yes

Percentage of existing K-12 plan currently completed
25–49%

Percentage of existing K-12 plan completed one year ago
Less than 25%

State is planning a NetDay to wire schools for Internet access
Yes

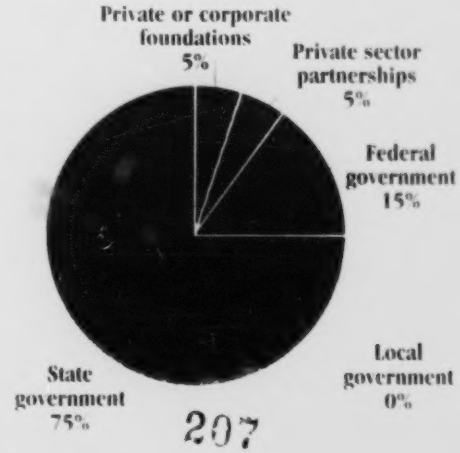
C Current Funding Sources for Network Development

Sources of funding currently available for the development of telecommunications infrastructure for education *all that apply marked bold*
Local government
State government
Federal government
Private sector partnerships
Private or corporate foundations

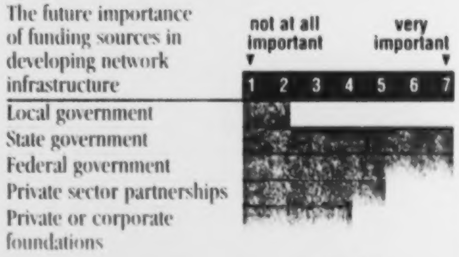
Other current sources of funding
No

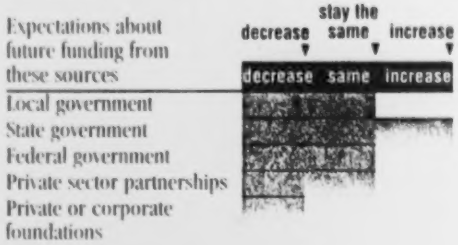
Funding sources and the percentage of funding from those sources used to develop infrastructure of existing educational telecommunications network *presented as a pie chart below*

Funding Proportions from Sources

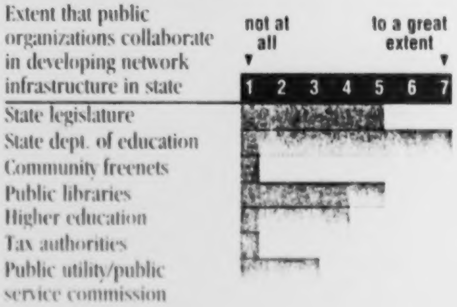


D Importance of Funding Sources and Future Expectations





E Government Collaboration in Infrastructure Development



The state's public utility/public service commission has established special tariffs for K-12 education
Yes

The significance of such tariffs for networking efforts for K-12 education
Somewhat significant

The impact the federal *Telecommunications Act of 1996* will have on state's network development
Positive impact

F Private Sector Collaboration in K-12 Network Development

Major telecommunications providers have established a program in the state to encourage network infrastructure building
Yes

Specific providers
AT&T, MCI Telecommunications Corporation

Parties that provided the incentives for establishing this program
AT&T, MCI, [and a] competitive market

Significance of such programs for networking efforts
Very significant

Best way to establish relationships with telecommunications providers to develop state's telecommunications network infrastructure
"It's got be competitive marketing. We put out a request for proposal and force the competition to occur."

*"*Don't know" response recorded*

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G Current Status of Network Development and Use Statewide

Percent of school districts in state with local dial-up access
100%

Percent of school districts in state with toll-free dial-up access
100%

Percent of school districts in state with dedicated access
15%

Percent of schools in state with a Web site
10%

Percent of K-12 educators who have state-provided or subsidized access to telecommunications networks
100%

Percent of K-12 educators who use these services
10%

Percent of K-12 students who have state-provided or subsidized access to telecommunications networks
60%

Percent of K-12 students who use these services
60%

The state education network provides dial-up network access
Yes

How dial-up access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

The state education network provides dedicated network access
Yes

How dedicated access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

Current network development efforts in state are primarily directed at providing
response marked bold
Dial-up access
Dedicated access
Both dial-up and dedicated access

*"Don't know" response recorded

H Network Access 1995 and 1996 and Projected Access 1997

Type of Access	1995	1996	1997
Percent of local dial-up	100%	100%	100%
Percent of toll-free dial-up	100%	100%	100%
Percent of dedicated access	10%	15%	25%
Percent of local dial-up	100%	100%	100%
Percent of toll-free dial-up	100%	100%	100%
Percent of dedicated access	10%	15%	25%
Percent of local dial-up	100%	100%	100%
Percent of toll-free dial-up	100%	100%	100%
Percent of dedicated access	0%	5%	25%

Percentages of state's school districts and the network access they used in spring 1995 and spring 1996 and projections for spring 1997

I State Initiatives Promoting Network Use

State has an initiative to integrate Web resources into state curriculum frameworks
Yes

State's education agency would consider adopting Web resources as textbooks
No

State has a safety-net initiative to provide underserved K-12 populations with Internet connectivity
Yes

State education agency currently has a Web site at
http://www.state.nj.us/education/

J State's Information Service Providers in the Public Sector

Sources in state that provide information services on public networks
all that apply marked bold
State legislature
Public utility/public service commission
State dept. of education
Community freenets
Public libraries
Higher education
Tax authorities

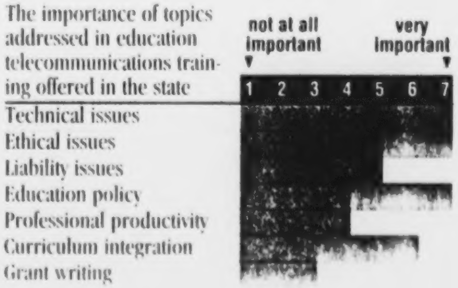
Other sources of public information networks
No

K Telecommunications Training Topics and Their Importance

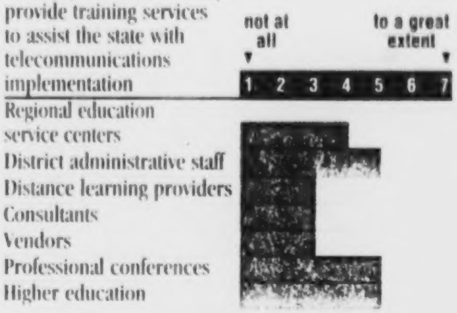
Topics currently addressed in education telecommunications training offered in the state
all that apply marked bold
Technical issues
Ethical issues
Liability issues
Education policy
Professional productivity
Curriculum integration
Grant writing

Other topics addressed in training
No

The importance of topics addressed in education telecommunications training offered in the state



The extent to which the following sources currently provide training services to assist the state with telecommunications implementation



Other sources of training
New Jersey department of education

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NM

New Mexico

A Demographics

Number of school districts
89

Number of school buildings
722

Number of K-12 teachers currently employed
18,300

Number of K-12 students currently enrolled
320,000

Number of students in district with largest enrollment
95,000

Number of students in district with smallest enrollment
65

Number of districts with fewer than 1,000 students
*****

For Further Information

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505-827-6696 (fax)

All information current in spring 1996

B Implementation of Telecommunications Plan

State has a long-range telecommunications plan for K-12 education
Yes

If not, state is developing one
NA

Existing K-12 plan is part of a larger, statewide plan
Yes

Percentage of existing K-12 plan currently completed
25–49%

Percentage of existing K-12 plan completed one year ago
Less than 25%

State is planning a NetDay to wire schools for Internet access
Yes

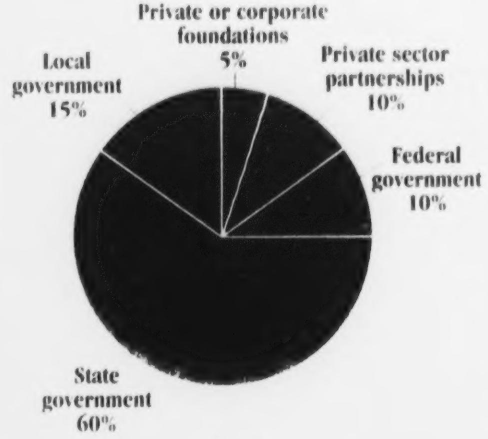
C Current Funding Sources for Network Development

Sources of funding currently available for the development of telecommunications infrastructure for education
all that apply marked bold
Local government
State government
Federal government
Private sector partnerships
Private or corporate foundations

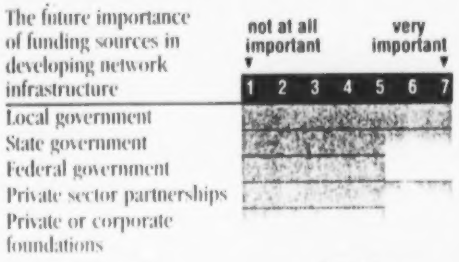
Other current sources of funding
Local school districts

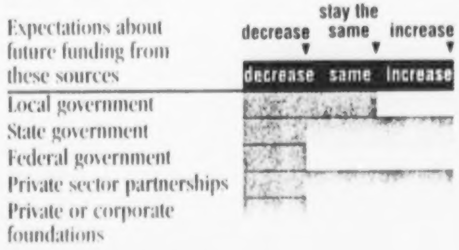
Funding sources and the percentage of funding from those sources used to develop infrastructure of existing educational telecommunications network
presented as a pie chart below

Funding Proportions from Sources

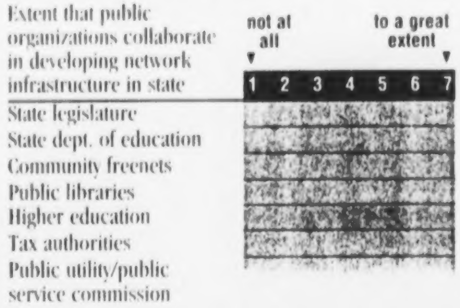


D Importance of Funding Sources and Future Expectations





E Government Collaboration in Infrastructure Development



The state's public utility/public service commission has established special tariffs for K-12 education
No

The significance of such tariffs for networking efforts for K-12 education
Very significant

The impact the federal *Telecommunications Act of 1996* will have on state's network development
Positive impact

F Private Sector Collaboration in K-12 Network Development

Major telecommunications providers have established a program in the state to encourage network infrastructure building
Yes

Specific providers
MCI Telecommunications Corporation, AT&T, US WEST, Inc., Sprint Communications, Eastern New Mexico Rural Cooperative

Parties that provided the incentives for establishing this program
MCI, AT&T, US WEST, Sprint, Eastern New Mexico Rural Cooperative

Significance of such programs for networking efforts
Somewhat significant

Best way to establish relationships with telecommunications providers to develop state's telecommunications network infrastructure
"To maintain a continuous dialogue with all players, including parents, teachers, educators, corporations, legislators, the New Mexico department of education, providers, and the business community."

* *"Don't know" response recorded*

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G Current Status of Network Development and Use Statewide

Percent of school districts in state with local dial up access
20%

Percent of school districts in state with toll free dial up access
100%

Percent of school districts in state with dedicated access
30%

Percent of schools in state with a Web site
15%

Percent of K-12 educators who have state provided or subsidized access to telecommunications networks
100%

Percent of K-12 educators who use these services
40%

Percent of K-12 students who have state-provided or subsidized access to telecommunications networks
10%

Percent of K-12 students who use these services
10%

The state education network provides dial-up network access
Yes

How dial-up access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

The state education network provides dedicated network access
Yes

How dedicated access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

Current network development efforts in state are primarily directed at providing
response marked bold
Dial-up access
Dedicated access
Both dial-up and dedicated access

* *"Don't know" response recorded*

H Network Access 1995 and 1996 and Projected Access 1997

Type of Access	1995	1996	1997
Percent of local dial-up	20%	20%	20%
Percent of toll-free dial-up	100%	100%	100%
Percent of dedicated access	20%	30%	40%
Percent of local dial-up	100%	100%	100%
Percent of toll-free dial-up	100%	100%	100%
Percent of dedicated access	10%	15%	25%
Percent of local dial-up	15%	15%	20%
Percent of toll-free dial-up	100%	100%	100%
Percent of dedicated access	5%	10%	25%

Percentages of state's school districts and the network access they used in spring 1995 and spring 1996 and projections for spring 1997

I State Initiatives Promoting Network Use

State has an initiative to integrate Web resources into state curriculum frameworks
Yes

State's education agency would consider adopting Web resources as textbooks
Yes

State has a safety-net initiative to provide underserved K-12 populations with Internet connectivity
Yes

State education agency currently has a Web site at
http://sde.state.nm.us./

J State's Information Service Providers in the Public Sector

Sources in state that provide information services on public networks
all that apply marked bold
State legislature
Public utility/public service commission
State dept. of education
Community freenets
Public libraries
Higher education
Tax authorities

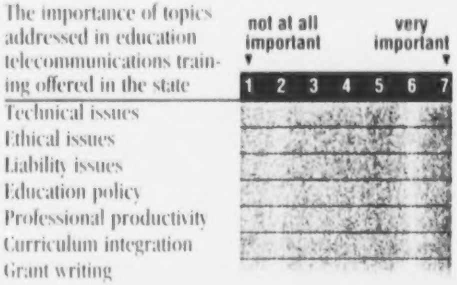
Other sources of public information networks
Navajo Nation, Research Institute for Assistive Technologies, New Mexico Departments of Economic Development and Tourism, New Mexico Information Systems Division, Los Alamos and Sandia National Laboratories, New Mexico TechNet

K Telecommunications Training Topics and Their Importance

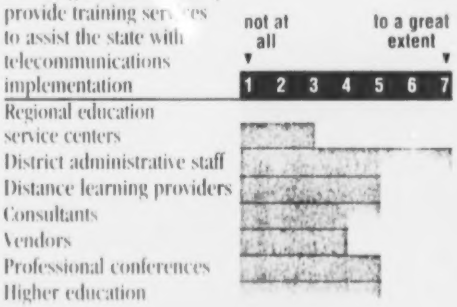
Topics currently addressed in education telecommunications training offered in the state
all that apply marked bold
Technical issues
Ethical issues
Liability issues
Education policy
Professional productivity
Curriculum integration
Grant writing

Other topics addressed in training
Long-range educational strategic planning

The importance of topics addressed in education telecommunications training offered in the state



The extent to which the following sources currently provide training services to assist the state with telecommunications implementation



Other sources of training
Los Alamos National Laboratory's Educational Outreach, Sandia National Laboratories, community colleges, New Mexico TechNet, New Mexico Tech Corps

NY

New York

A Demographics

Number of school districts
712

Number of school buildings
4,068

Number of K-12 teachers currently employed
190,759

Number of K-12 students currently enrolled
2,733,913

Number of students in district with largest enrollment
1,009,593

Number of students in district with smallest enrollment
*****

Number of districts with fewer than 1,000 students
206

For Further Information

Walker Crewson
Director of Telecommunication Policy
New York Dept. of Education
Room 530
89 Washington Avenue
Albany, New York 12234
wcrewson@mail.nysed.gov
518-486-5832 (phone)
518-474-2004 (fax)

All information current in spring 1996

B Implementation of Telecommunications Plan

State has a long-range telecommunications plan for K-12 education
Yes

If not, state is developing one
NA

Existing K-12 plan is part of a larger, statewide plan
No

Percentage of existing K-12 plan currently completed
50–74%

Percentage of existing K-12 plan completed one year ago
25–49%

State is planning a NetDay to wire schools for Internet access
Yes

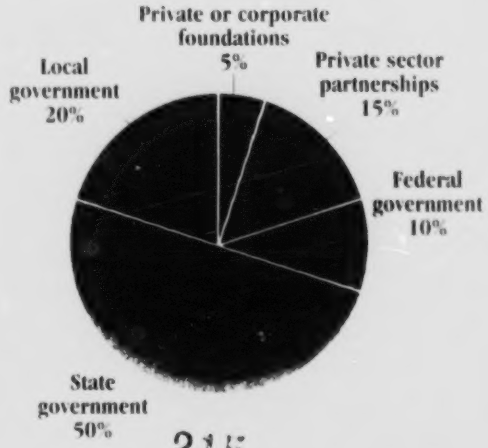
C Current Funding Sources for Network Development

Sources of funding currently available for the development of telecommunications infrastructure for education
all that apply marked bold
Local government
State government
Federal government
Private sector partnerships
Private or corporate foundations

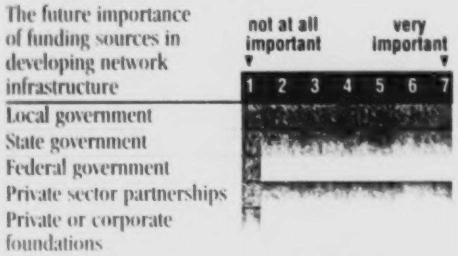
Other current sources of funding
No

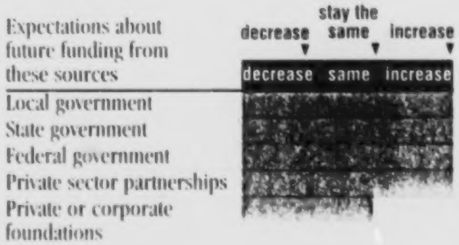
Funding sources and the percentage of funding from those sources used to develop infrastructure of existing educational telecommunications network
presented as a pie chart below

Funding Proportions from Sources

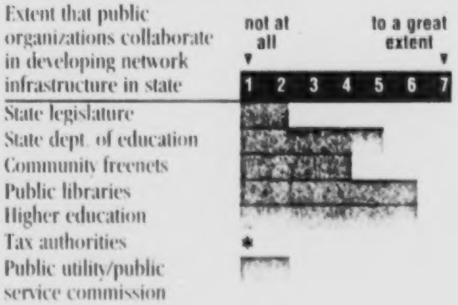


D Importance of Funding Sources and Future Expectations





E Government Collaboration in Infrastructure Development



The state's public utility/public service commission has established special tariffs for K-12 education
No

The significance of such tariffs for networking efforts for K-12 education
Somewhat significant

The impact the federal *Telecommunications Act of 1996* will have on state's network development
Positive impact

F Private Sector Collaboration in K-12 Network Development

Major telecommunications providers have established a program in the state to encourage network infrastructure building
Yes

Specific providers
NYNEX Corporation, local phone and long distance companies

Parties that provided the incentives for establishing this program
NYNEX

Significance of such programs for networking efforts
Very significant

Best way to establish relationships with telecommunications providers to develop state's telecommunications network infrastructure
"Work with the entire telecommunications industry."

*"*Don't know*" *response recorded*

G Current Status of Network Development and Use Statewide

Percent of school districts in state with local dial-up access
100%

Percent of school districts in state with toll-free dial-up access
*****

Percent of school districts in state with dedicated access
*****

Percent of schools in state with a Web site
*****

Percent of K-12 educators who have state-provided or subsidized access to telecommunications networks
*****

Percent of K-12 educators who use these services
*****

Percent of K-12 students who have state-provided or subsidized access to telecommunications networks
*****

Percent of K-12 students who use these services
*****

The state education network provides dial-up network access
NA
"No education telecommunications network."

The state education network provides dedicated network access
NA
"No education telecommunications network."

Current network development efforts in state are primarily directed at providing
response marked bold
Dial-up access
Dedicated access
Both dial-up and dedicated access

*"Don't know" response recorded

H Network Access 1995 and 1996 and Projected Access 1997

Type of Access	1995	1996	1997
Percent of local dial-up	70%	100%	100%
Percent of toll-free dial-up	*	*	*
Percent of dedicated access	*	*	*
Percent of local dial-up	40%	50%	60%
Percent of toll-free dial-up	*	*	*
Percent of dedicated access	*	*	*
Percent of local dial-up	40%	50%	60%
Percent of toll-free dial-up	*	*	*
Percent of dedicated access	*	*	*

Percentages of state's school districts and the network access they used in spring 1995 and spring 1996 and projections for spring 1997

I State Initiatives Promoting Network Use

State has an initiative to integrate Web resources into state curriculum frameworks
Yes

State's education agency would consider adopting Web resources as textbooks
Yes

State has a safety-net initiative to provide underserved K-12 populations with Internet connectivity
Yes

State education agency currently has a Web site at
http://www.nysed.gov/

J State's Information Service Providers in the Public Sector

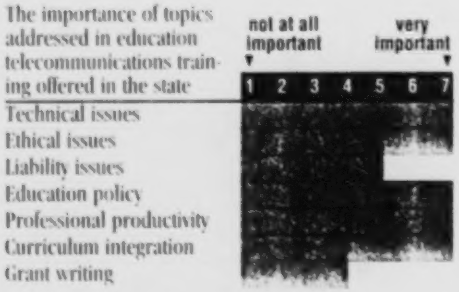
Sources in state that provide information services on public networks
all that apply marked bold
State legislature
Public utility/public service commission
State dept. of education
Community freenets
Public libraries
Higher education
Tax authorities*

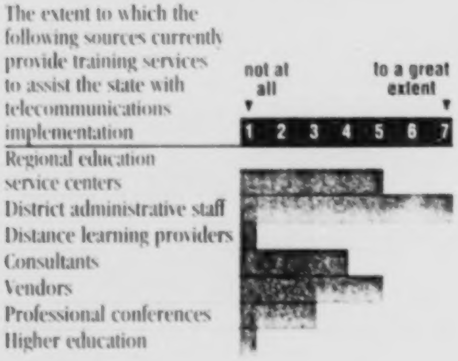
Other sources of public information networks
Museums, New York state [agencies]

K Telecommunications Training Topics and Their Importance

Topics currently addressed in education telecommunications training offered in the state
all that apply marked bold
Technical issues
Ethical issues
Liability issues
Education policy
Professional productivity
Curriculum integration
Grant writing

Other topics addressed in training
No





Other sources of training
No

North Carolina

NC

A Demographics

Number of school districts
119

Number of school buildings
1,969

Number of K-12 teachers currently employed
60,000

Number of K-12 students currently enrolled
1,300,000

Number of students in district with largest enrollment
83,000

Number of students in district with smallest enrollment
750

Number of districts with fewer than 1,000 students
*****

B Implementation of Telecommunications Plan

State has a long-range telecommunications plan for K-12 education
Yes

If not, state is developing one
NA

Existing K-12 plan is part of a larger, statewide plan
Yes

Percentage of existing K-12 plan currently completed
25–49%

Percentage of existing K-12 plan completed one year ago
Less than 25%

State is planning a NetDay to wire schools for Internet access
Yes

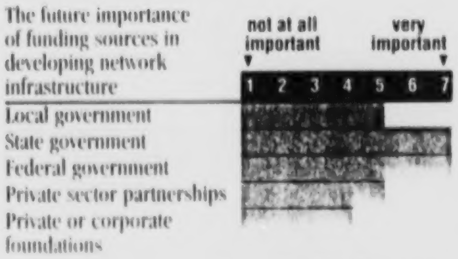
C Current Funding Sources for Network Development

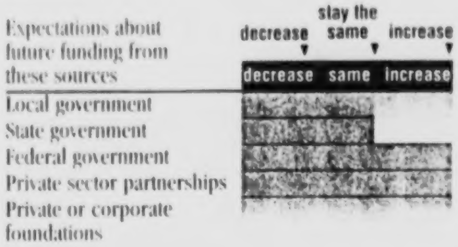
Sources of funding currently available for the development of telecommunications infrastructure for education
all that apply marked bold
Local government
State government
Federal government
Private sector partnerships
Private or corporate foundations

Other current sources of funding
No

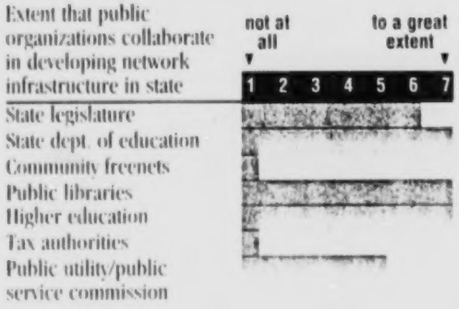
Funding sources and the percentage of funding from those sources used to develop infrastructure of existing educational telecommunications network
presented as a pie chart below

D Importance of Funding Sources and Future Expectations





E Government Collaboration in Infrastructure Development



The state's public utility/public service commission has established special tariffs for K-12 education
No

The significance of such tariffs for networking efforts for K-12 education
Very significant

The impact the federal *Telecommunications Act of 1996* will have on state's network development
Positive impact

F Private Sector Collaboration in K-12 Network Development

Major telecommunications providers have established a program in the state to encourage network infrastructure building
Yes

Specific providers
BellSouth Corporation, AT&T, Sprint Carolina, GTE

Parties that provided the incentives for establishing this program
Governor's Office

Significance of such programs for networking efforts
Very significant

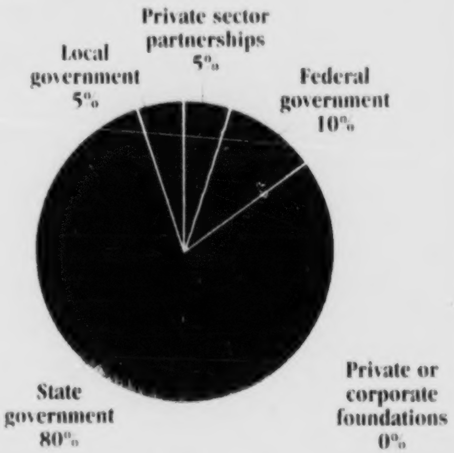
Best way to establish relationships with telecommunications providers to develop state's telecommunications network infrastructure
"By having a formal partnership at the top level, including the Governor's Office and the legislature."

For Further Information

Elsie L. Brumback
Director of Media and Technology Service
North Carolina Dept. of Public Instruction
301 North Wilmington Street
Raleigh, North Carolina 27601-2825
ebrumbac@dpi.state.nc.us
919-715-1530 (phone)
919-733-4762 (fax)

All information current in spring 1996

Funding Proportions from Sources



* *"Don't know" response recorded*

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G Current Status of Network Development and Use Statewide

Percent of school districts in state with local dial-up access
*

Percent of school districts in state with toll free dial-up access
*

Percent of school districts in state with dedicated access
*

Percent of schools in state with a Web site
1%

Percent of K-12 educators who have state provided or subsidized access to telecommunications networks
*

Percent of K-12 educators who use these services
*

Percent of K-12 students who have state-provided or subsidized access to telecommunications networks
*

Percent of K-12 students who use these services
*

The state education network provides dial-up network access
Yes

How dial-up access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

The state education network provides dedicated network access
Yes

How dedicated access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

Current network development efforts in state are primarily directed at providing
response marked bold
Dial-up access
Dedicated access
Both dial-up and dedicated access

* *"Don't know" response recorded*

H Network Access 1995 and 1996 and Projected Access 1997

Type of Access	1995	1996	1997
Percent of local dial-up	100%	100%	100%
Percent of toll-free dial-up	*	*	*
Percent of dedicated access	*	*	*
Percent of local dial-up	*	*	*
Percent of toll-free dial-up	*	*	*
Percent of dedicated access	*	*	*
Percent of local dial-up	*	*	*
Percent of toll-free dial-up	*	*	*
Percent of dedicated access	*	*	*

Percentages of state's school districts and the network access they used in spring 1995 and spring 1996 and projections for spring 1997

I State Initiatives Promoting Network Use

State has an initiative to integrate Web resources into state curriculum frameworks
No

State's education agency would consider adopting Web resources as textbooks
No

State has a safety-net initiative to provide underserved K-12 populations with Internet connectivity
Yes

State education agency currently has a Web site at
http://www.dpi.state.nc.us/
or
http://www.dpi.state.nc.us/Internet.Resources/NCSchools.html/

J State's Information Service Providers in the Public Sector

Sources in state that provide information services on public networks
all that apply marked bold
State legislature
Public utility/public service commission*
State dept. of education
Community freenets
Public libraries
Higher education
Tax authorities*

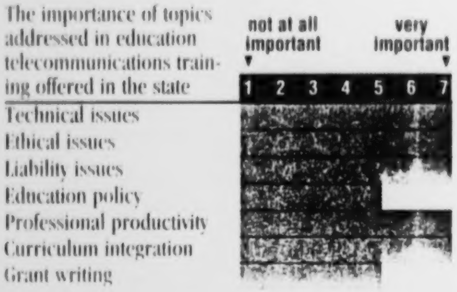
Other sources of public information networks
Employment Security Commission, North Carolina Departments of Commerce, Agriculture, Transportation, Environment, Health, and Natural Resources

K Telecommunications Training Topics and Their Importance

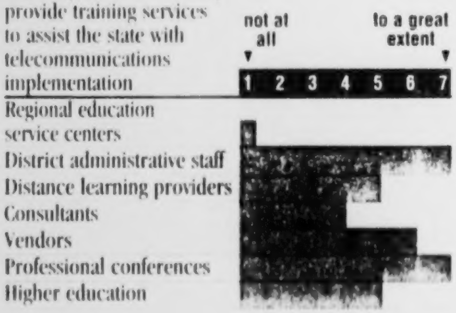
Topics currently addressed in education telecommunications training offered in the state
all that apply marked bold
Technical issues
Ethical issues
Liability issues
Education policy
Professional productivity
Curriculum integration
Grant writing

Other topics addressed in training
Resource identification

The importance of topics addressed in education telecommunications training offered in the state



The extent to which the following sources currently provide training services to assist the state with telecommunications implementation



Other sources of training
Employees of the state education department with assistance from teachers and other educators

North Dakota

ND

A Demographics

Number of school districts
240

Number of school buildings
550

Number of K-12 teachers currently employed
7,000

Number of K-12 students currently enrolled
118,000

Number of students in district with largest enrollment
12,000

Number of students in district with smallest enrollment
20

Number of districts with fewer than 1,000 students
228

For Further Information

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North Dakota Dept. of Public Instruction
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Bismarck, North Dakota 58505
jlinnertz@c01as400.state.nd.us
701-328-2278 (phone)
701-328-2461 (fax)

223

All information current in spring 1996

B Implementation of Telecommunications Plan

State has a long-range telecommunications plan for K-12 education
No

If not, state is developing one
Yes

Existing K-12 plan is part of a larger, statewide plan
NA

Percentage of existing K-12 plan currently completed
NA

Percentage of existing K-12 plan completed one year ago
NA

State is planning a NetDay to wire schools for Internet access
No

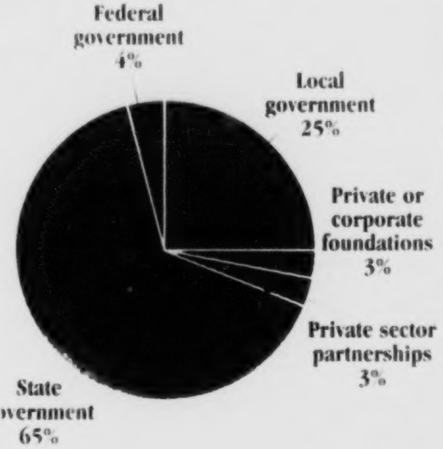
C Current Funding Sources for Network Development

Sources of funding currently available for the development of telecommunications infrastructure for education
all that apply marked bold
Local government
State government
Federal government
Private sector partnerships
Private or corporate foundations

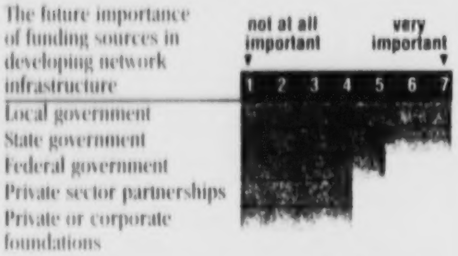
Other current sources of funding
No

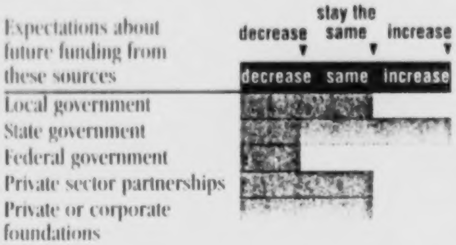
Funding sources and the percentage of funding from those sources used to develop infrastructure of existing educational telecommunications network
presented as a pie chart below

Funding Proportions from Sources

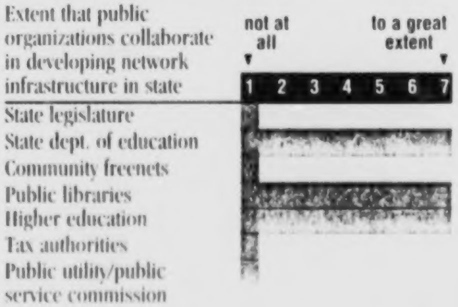


D Importance of Funding Sources and Future Expectations





E Government Collaboration in Infrastructure Development



The state's public utility/public service commission has established special tariffs for K-12 education
No

The significance of such tariffs for networking efforts for K-12 education
Very significant

The impact the federal *Telecommunications Act of 1996* will have on state's network development
Positive impact

224

F Private Sector Collaboration in K-12 Network Development

Major telecommunications providers have established a program in the state to encourage network infrastructure building
No

Significance of such programs for networking efforts
Somewhat significant

Best way to establish relationships with telecommunications providers to develop state's telecommunications network infrastructure
"It is necessary to initiate contacts and discuss needs on all sides."

* *"Don't know" response recorded*

G Current Status of Network Development and Use Statewide

Percent of school districts in state with local dial-up access
99%

Percent of school districts in state with toll-free dial-up access
99%

Percent of school districts in state with dedicated access
50%

Percent of schools in state with a Web site
*

Percent of K-12 educators who have state-provided or subsidized access to telecommunications networks
0%

Percent of K-12 educators who use these services
0%

Percent of K-12 students who have state-provided or subsidized access to telecommunications networks
100%

Percent of K-12 students who use these services
75%

The state education network provides dial-up network access
Yes

How dial-up access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

The state education network provides dedicated network access
Yes

How dedicated access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

Current network development efforts in state are primarily directed at providing
response marked bold
Dial-up access
Dedicated access
Both dial-up and dedicated access

*"Don't know" response recorded

H Network Access 1995 and 1996 and Projected Access 1997

Type of Access	1995	1996	1997
Percent of local dial-up	**100%**	**100%**	**100%**
Percent of toll-free dial-up	**99%**	**99%**	**99%**
Percent of dedicated access	**10%**	**50%**	**75%**
Percent of local dial-up	**100%**	**100%**	**100%**
Percent of toll-free dial-up	**100%**	**100%**	**100%**
Percent of dedicated access	**100%**	**100%**	**100%**
Percent of local dial-up	5%	25%	75%
Percent of toll-free dial-up	100%	100%	100%
Percent of dedicated access	5%	50%	75%

Percentages of state's school districts and the network access they used in spring 1995 and spring 1996 and projections for spring 1997

I State Initiatives Promoting Network Use

State has an initiative to integrate Web resources into state curriculum frameworks
No

State's education agency would consider adopting Web resources as textbooks
*

State has a safety-net initiative to provide underserved K-12 populations with Internet connectivity
Yes

State education agency currently has a Web site at
http://www.state.nd.us/www/k12.html

J State's Information Service Providers in the Public Sector

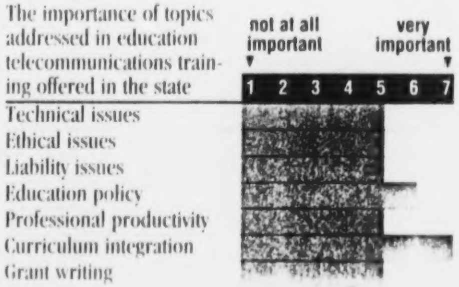
Sources in state that provide information services on public networks
all that apply marked bold
State legislature
Public utility/public service commission
State dept. of education
Community freenets
Public libraries
Higher education
Tax authorities

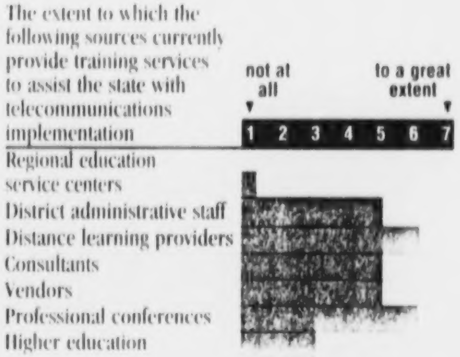
Other sources of public information networks
No

K Telecommunications Training Topics and Their Importance

Topics currently addressed in education telecommunications training offered in the state
all that apply marked bold
Technical issues
Ethical issues
Liability issues
Education policy
Professional productivity
Curriculum integration
Grant writing

Other topics addressed in training
No





Other sources of training
No

Ohio

OH

A Demographics

Number of school districts
660

Number of school buildings
3,800

Number of K-12 teachers currently employed
120,000

Number of K-12 students currently enrolled
1,800,000

Number of students in district with largest enrollment
70,000

Number of students in district with smallest enrollment
2

Number of districts with fewer than 1,000 students
165

For Further Information

Tim Best
Director of SchoolNet
Ohio Dept. of Education
2151 Carmack
Columbus, Ohio 43221
ims_best@ode.ohio.gov
614-466-7003 (phone)
614-466-0022 (fax)

All information current in spring 1996

B Implementation of Telecommunications Plan

State has a long-range telecommunications plan for K-12 education
Yes

If not, state is developing one
NA

Existing K-12 plan is part of a larger, statewide plan
Yes

Percentage of existing K-12 plan currently completed
25–49%

Percentage of existing K-12 plan completed one year ago
Less than 25%

State is planning a NetDay to wire schools for Internet access
Yes

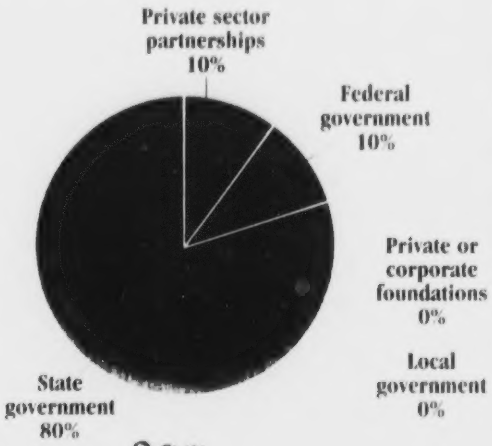
C Current Funding Sources for Network Development

Sources of funding currently available for the development of telecommunications infrastructure for education
all that apply marked bold
Local government
State government
Federal government
Private sector partnerships
Private or corporate foundations

Other current sources of funding
No

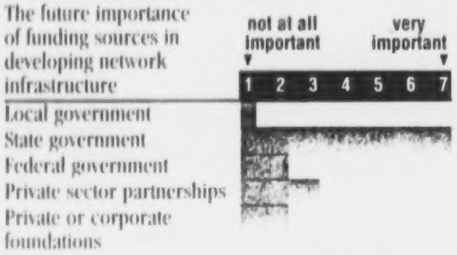
Funding sources and the percentage of funding from those sources used to develop infrastructure of existing educational telecommunications network
presented as a pie chart below

Funding Proportions from Sources

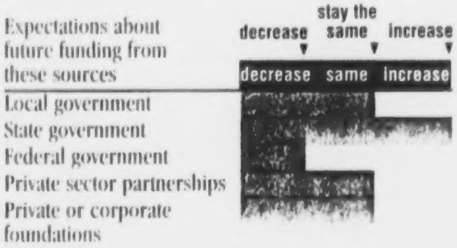


D Importance of Funding Sources and Future Expectations

The future importance of funding sources in developing network infrastructure

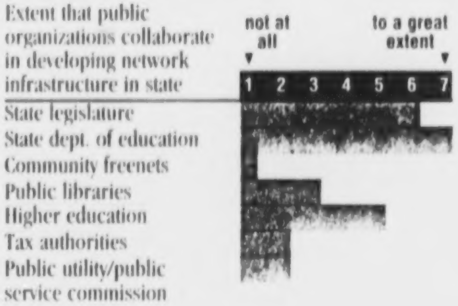


Expectations about future funding from these sources



E Government Collaboration in Infrastructure Development

Extent that public organizations collaborate in developing network infrastructure in state



The state's public utility/public service commission has established special tariffs for K-12 education
Yes

The significance of such tariffs for networking efforts for K-12 education
Very significant

The impact the federal *Telecommunications Act of 1996* will have on state's network development
Positive impact

F Private Sector Collaboration in K-12 Network Development

Major telecommunications providers have established a program in the state to encourage network infrastructure building
Yes

Specific providers
Ameritech Corporation

Parties that provided the incentives for establishing this program
State of Ohio legal agreement

Significance of such programs for networking efforts
Somewhat significant

Best way to establish relationships with telecommunications providers to develop state's telecommunications network infrastructure
"The best way is through open participation with the state project management. Competitive bidding is the best for us because our school districts have local control."

---

* *"Don't know" response recorded*

G Current Status of Network Development and Use Statewide

Percent of school districts in state with local dial-up access
*

Percent of school districts in state with toll-free dial-up access
*

Percent of school districts in state with dedicated access
90%

Percent of schools in state with a Web site
10%

Percent of K-12 educators who have state-provided or subsidized access to telecommunications networks
50%

Percent of K-12 educators who use these services
20%

Percent of K-12 students who have state-provided or subsidized access to telecommunications networks
10%

Percent of K-12 students who use these services
10%

The state education network provides dial-up network access
Yes

How dial-up access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

The state education network provides dedicated network access
Yes

How dedicated access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

Current network development efforts in state are primarily directed at providing
response marked bold
Dial-up access
Dedicated access
Both dial-up and dedicated access

*"Don't know" response recorded

H Network Access 1995 and 1996 and Projected Access 1997

Type of Access	1995	1996	1997
Percent of local dial-up	*	*	*
Percent of toll-free dial-up	*	*	*
Percent of dedicated access	90%	90%	100%
Percent of local dial-up	*	*	*
Percent of toll-free dial-up	*	*	*
Percent of dedicated access	90%	90%	100%
Percent of local dial-up	*	*	*
Percent of toll-free dial-up	*	*	*
Percent of dedicated access	95%	95%	100%

Percentages of state's school districts and the network access they used in spring 1995 and spring 1996 and projections for spring 1997

I State Initiatives Promoting Network Use

State has an initiative to integrate Web resources into state curriculum frameworks
No

State's education agency would consider adopting Web resources as textbooks
Yes

State has a safety-net initiative to provide underserved K-12 populations with Internet connectivity
Yes

State education agency currently has a Web site at
http://www.ode.ohio.gov/
or
http://www.ohioschoolnet.k12.oh.us/

J State's Information Service Providers in the Public Sector

Sources in state that provide information services on public networks
all that apply marked bold
State legislature
Public utility/public service commission
State dept. of education
Community freenets
Public libraries
Higher education
Tax authorities

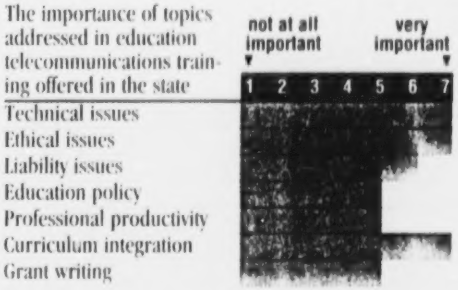
Other sources of public information networks
Eisenhower National Clearinghouse for Mathematics and Science

K Telecommunications Training Topics and Their Importance

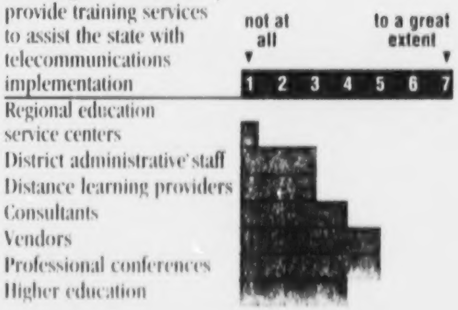
Topics currently addressed in education telecommunications training offered in the state
all that apply marked bold
Technical issues
Ethical issues
Liability issues
Education policy
Professional productivity
Curriculum integration
Grant writing

Other topics addressed in training
No

The importance of topics addressed in education telecommunications training offered in the state



The extent to which the following sources currently provide training services to assist the state with telecommunications implementation



Other sources of training
State of Ohio

Oklahoma

OK

A Demographics

Number of school districts
550

Number of school buildings
1,800

Number of K-12 teachers currently employed
45,000

Number of K-12 students currently enrolled
605,000

Number of students in district with largest enrollment
40,000

Number of students in district with smallest enrollment
50

Number of districts with fewer than 1,000 students
420

For Further Information

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Oklahoma City, Oklahoma
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405-521-3354 (phone)
405-521-6205 (fax)

All information current in spring 1996

B Implementation of Telecommunications Plan

State has a long-range telecommunications plan for K-12 education
Yes

If not, state is developing one
Yes

Existing K-12 plan is part of a larger, statewide plan
Yes

Percentage of existing K-12 plan currently completed
25–49%

Percentage of existing K-12 plan completed one year ago
Less than 25%

State is planning a NetDay to wire schools for Internet access
Yes

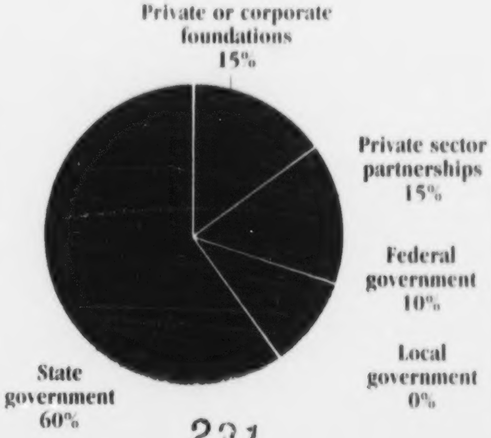
C Current Funding Sources for Network Development

Sources of funding currently available for the development of telecommunications infrastructure for education
all that apply marked bold
Local government
State government
Federal government
Private sector partnerships
Private or corporate foundations

Other current sources of funding
No

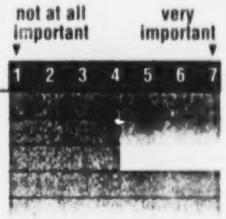
Funding sources and the percentage of funding from those sources used to develop infrastructure of existing educational telecommunications network
presented as a pie chart below

Funding Proportions from Sources



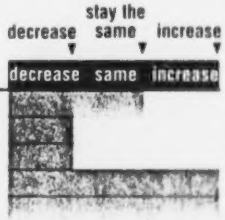
D Importance of Funding Sources and Future Expectations

The future importance of funding sources in developing network infrastructure



Local government
State government
Federal government
Private sector partnerships
Private or corporate foundations

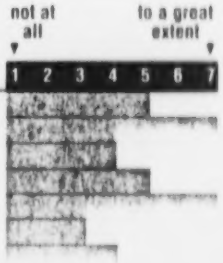
Expectations about future funding from these sources



Local government
State government
Federal government
Private sector partnerships
Private or corporate foundations

E Government Collaboration in Infrastructure Development

Extent that public organizations collaborate in developing network infrastructure in state



State legislature
State dept. of education
Community freenets
Public libraries
Higher education
Tax authorities
Public utility/public service commission

The state's public utility/public service commission has established special tariffs for K-12 education
Yes

The significance of such tariffs for networking efforts for K-12 education
Very significant

The impact the federal *Telecommunications Act of 1996* will have on state's network development
Positive impact

F Private Sector Collaboration in K-12 Network Development

Major telecommunications providers have established a program in the state to encourage network infrastructure building
No

Significance of such programs for networking efforts
Very significant

Best way to establish relationships with telecommunications providers to develop state's telecommunications network infrastructure
"Talk to providers and show them benefits of what they are building for themselves and the state."

* *"Don't know" response recorded*

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G Current Status of Network Development and Use Statewide

Percent of school districts in state with local dial-up access
20%

Percent of school districts in state with toll-free dial-up access
*

Percent of school districts in state with dedicated access
4%

Percent of schools in state with a Web site
15%

Percent of K-12 educators who have state-provided or subsidized access to telecommunications networks
*

Percent of K-12 educators who use these services
*

Percent of K-12 students who have state-provided or subsidized access to telecommunications networks
*

Percent of K-12 students who use these services
*

The state education network provides dial-up network access
Yes

How dial-up access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

The state education network provides dedicated network access
Yes

How dedicated access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

Current network development efforts in state are primarily directed at providing
response marked bold
Dial-up access
Dedicated access
Both dial-up and dedicated access

* *"Don't know" response recorded*

H Network Access 1995 and 1996 and Projected Access 1997

Type of Access	1995	1996	1997
Percent of local dial-up	5%	20%	75%
Percent of toll-free dial-up	*	*	8%
Percent of dedicated access	2%	4%	30%
Percent of local dial-up	15%	25%	50%
Percent of toll-free dial-up	*	*	10%
Percent of dedicated access	3%	10%	50%
Percent of local dial-up	2%	5%	40%
Percent of toll-free dial-up	*	*	*
Percent of dedicated access	3%	10%	15%

Percentages of state's school districts and the network access they used in spring 1995 and spring 1996 and projections for spring 1997

I State Initiatives Promoting Network Use

State has an initiative to integrate Web resources into state curriculum frameworks
No

State's education agency would consider adopting Web resources as textbooks
No

State has a safety-net initiative to provide underserved K-12 populations with Internet connectivity
No

State education agency currently has a Web site at
http://sde.state.ok.us/

J State's Information Service Providers in the Public Sector

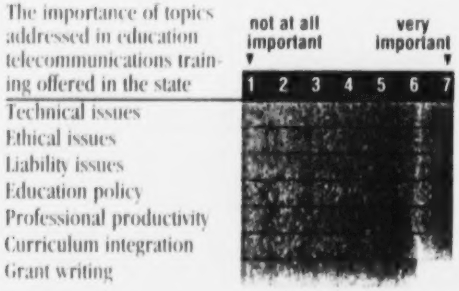
Sources in state that provide information services on public networks
all that apply marked bold
State legislature
Public utility/public service commission
State dept. of education
Community freenets
Public libraries
Higher education
Tax authorities

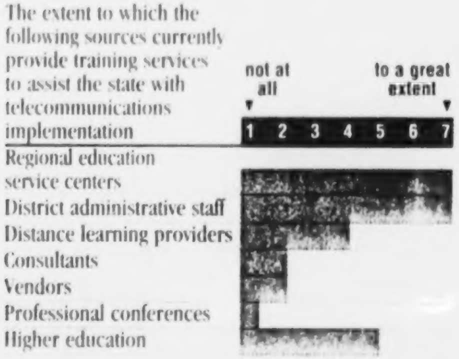
Other sources of public information networks
No

K Telecommunications Training Topics and Their Importance

Topics currently addressed in education telecommunications training offered in the state
all that apply marked bold
Technical issues
Ethical issues
Liability issues
Education policy
Professional productivity
Curriculum integration
Grant writing

Other topics addressed in training
No


The importance of topics addressed in education telecommunications training offered in the state


The extent to which the following sources currently provide training services to assist the state with telecommunications implementation

Other sources of training
No

A Demographics

Number of school districts
237

Number of school buildings
1,208

Number of K-12 teachers currently employed
31,709

Number of K-12 students currently enrolled
497,487

Number of students in district with largest enrollment
57,000

Number of students in district with smallest enrollment
7

Number of districts with fewer than 1,000 students
137

For Further Information

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503-699-2320 (phone)
503-635-0578 (fax)

All information current in spring 1996

B Implementation of Telecommunications Plan

State has a long-range telecommunications plan for K-12 education
Yes

If not, state is developing one
NA

Existing K-12 plan is part of a larger, statewide plan
Yes

Percentage of existing K-12 plan currently completed
50–74%

Percentage of existing K-12 plan completed one year ago
25–49%

State is planning a NetDay to wire schools for Internet access
Yes

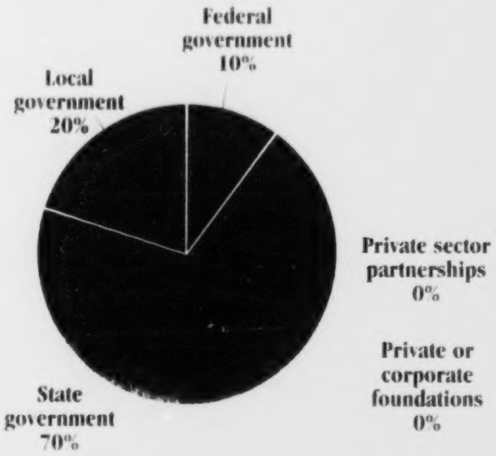
C Current Funding Sources for Network Development

Sources of funding currently available for the development of telecommunications infrastructure for education
all that apply marked bold
Local government
State government
Federal government
Private sector partnerships
Private or corporate foundations

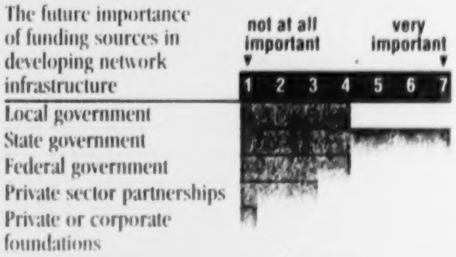
Other current sources of funding
No

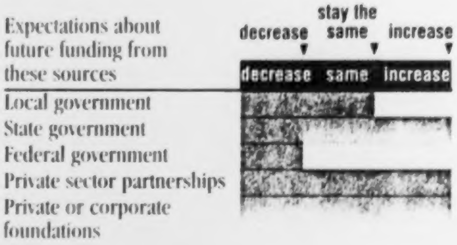
Funding sources and the percentage of funding from those sources used to develop infrastructure of existing educational telecommunications network
presented as a pie chart below

Funding Proportions from Sources

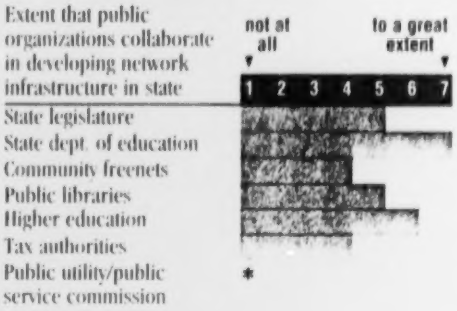


D Importance of Funding Sources and Future Expectations





E Government Collaboration in Infrastructure Development



The state's public utility/public service commission has established special tariffs for K-12 education
No

The significance of such tariffs for networking efforts for K-12 education
Very significant

The impact the federal *Telecommunications Act of 1996* will have on state's network development
Positive impact

F Private Sector Collaboration in K-12 Network Development

Major telecommunications providers have established a program in the state to encourage network infrastructure building
Yes

Specific providers
US WEST, Inc., GTE, Sprint United Communications, 33 telephone companies (partners)

Parties that provided the incentives for establishing this program
Oregon Department of Administrative Services, Oregon legislature

Significance of such programs for networking efforts
Very significant

Best way to establish relationships with telecommunications providers to develop state's telecommunications network infrastructure
"Show the telecom providers that there is only one network as [potentially] large as the K-12 network, and that is the state lottery."

*"Don't know" response recorded

G Current Status of Network Development and Use Statewide

Percent of school districts in state with local dial-up access
25%

Percent of school districts in state with toll-free dial-up access
0%

Percent of school districts in state with dedicated access
30%

Percent of schools in state with a Web site
10%

Percent of K-12 educators who have state-provided or subsidized access to telecommunications networks
0%

Percent of K-12 educators who use these services
0%

Percent of K-12 students who have state-provided or subsidized access to telecommunications networks
0%

Percent of K-12 students who use these services
0%

The state education network provides dial-up network access
No

The state education network provides dedicated network access
Yes

How dedicated access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

Current network development efforts in state are primarily directed at providing
response marked bold
Dial-up access
Dedicated access
Both dial-up and dedicated access

H Network Access 1995 and 1996 and Projected Access 1997

Type of Access	1995	1996	1997
Percent of local dial-up	10%	25%	50%
Percent of toll-free dial-up	0%	0%	0%
Percent of dedicated access	15%	30%	70%
Percent of local dial-up	100%	100%	100%
Percent of toll-free dial-up	0%	0%	0%
Percent of dedicated access	40%	70%	100%
Percent of local dial-up	5%	15%	30%
Percent of toll-free dial-up	0%	0%	0%
Percent of dedicated access	5%	20%	50%

Percentages of state's school districts and the network access they used in spring 1995 and spring 1996 and projections for spring 1997

I State Initiatives Promoting Network Use

State has an initiative to integrate Web resources into state curriculum frameworks
*

State's education agency would consider adopting Web resources as textbooks
*

State has a safety-net initiative to provide underserved K-12 populations with Internet connectivity
Yes

State education agency currently has a Web site at
http://www.ode.state.or.us/

J State's Information Service Providers in the Public Sector

Sources in state that provide information services on public networks
all that apply marked bold
State legislature
Public utility/public service commission*
State dept. of education
Community freenets
Public libraries
Higher education
Tax authorities*

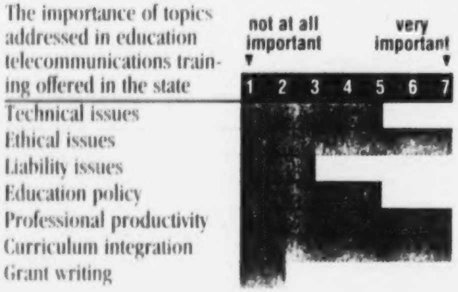
Other sources of public information networks
Secretary of State, Department of Administrative Services, many Oregon state agencies

K Telecommunications Training Topics and Their Importance

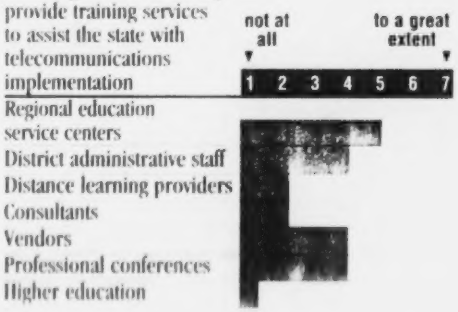
Topics currently addressed in education telecommunications training offered in the state
all that apply marked bold
Technical issues
Ethical issues
Liability issues
Education policy
Professional productivity*
Curriculum integration
Grant writing

Other topics addressed in training
Staffing resources, funding for telecommunications

The importance of topics addressed in education telecommunications training offered in the state



The extent to which the following sources currently provide training services to assist the state with telecommunications implementation



Other sources of training
Oregon department of education

OR

---

* "Don't know" response recorded

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Pennsylvania

PA

A Demographics

Number of school districts
501

Number of school buildings
6,000

Number of K-12 teachers currently employed
100,000

Number of K-12 students currently enrolled
3,500,000

Number of students in district with largest enrollment
220,000

Number of students in district with smallest enrollment
690

Number of districts with fewer than 1,000 students
*****

For Further Information

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Harrisburg, Pennsylvania 17110
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717-787-5440 (phone)
717-787-4523 (fax)

All information current in spring 1996

B Implementation of Telecommunications Plan

State has a long-range telecommunications plan for K-12 education
Yes

If not, state is developing one
NA

Existing K-12 plan is part of a larger, statewide plan
Yes

Percentage of existing K-12 plan currently completed
Less than 25%

Percentage of existing K-12 plan completed one year ago
Less than 25%

State is planning a NetDay to wire schools for Internet access
No

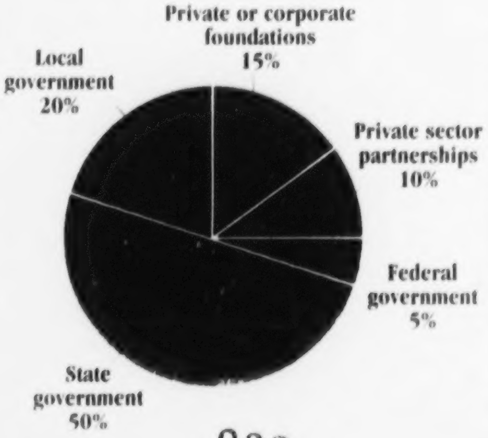
C Current Funding Sources for Network Development

Sources of funding currently available for the development of telecommunications infrastructure for education
all that apply marked bold
Local government
State government
Federal government
Private sector partnerships
Private or corporate foundations

Other current sources of funding
No

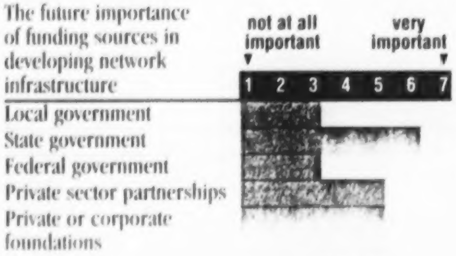
Funding sources and the percentage of funding from those sources used to develop infrastructure of existing educational telecommunications network
presented as a pie chart below

Funding Proportions from Sources

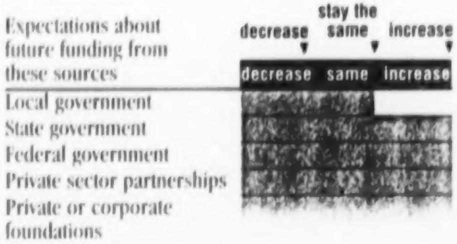


D Importance of Funding Sources and Future Expectations

The future importance of funding sources in developing network infrastructure

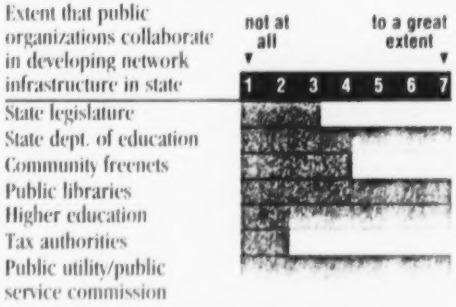


Expectations about future funding from these sources



E Government Collaboration in Infrastructure Development

Extent that public organizations collaborate in developing network infrastructure in state



The state's public utility/public service commission has established special tariffs for K-12 education
No

The significance of such tariffs for networking efforts for K-12 education
Very significant

The impact the federal *Telecommunications Act of 1996* will have on state's network development
Positive impact

F Private Sector Collaboration in K-12 Network Development

Major telecommunications providers have established a program in the state to encourage network infrastructure building
Yes

Specific providers
Bell Atlantic Corporation

Parties that provided the incentives for establishing this program
Bell Atlantic

Significance of such programs for networking efforts
Very significant

Best way to establish relationships with telecommunications providers to develop state's telecommunications network infrastructure
"Use a task force or planners to look for solutions through needs assessments. Ask providers to help with implementation."

* *"Don't know" response recorded*

G Current Status of Network Development and Use Statewide

Percent of school districts in state with local dial-up access
40%

Percent of school districts in state with toll-free dial-up access
70%

Percent of school districts in state with dedicated access
25%

Percent of schools in state with a Web site
10%

Percent of K-12 educators who have state-provided or subsidized access to telecommunications networks
100%

Percent of K-12 educators who use these services
20%

Percent of K-12 students who have state-provided or subsidized access to telecommunications networks
0%

Percent of K-12 students who use these services
0%

The state education network provides dial-up network access
Yes

How dial-up access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

The state education network provides dedicated network access
Yes

How dedicated access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

Current network development efforts in state are primarily directed at providing
response marked bold
Dial-up access
Dedicated access
Both dial-up and dedicated access

* *"Don't know" response recorded*

H Network Access 1995 and 1996 and Projected Access 1997

Type of Access	1995	1996	1997
Percent of local dial-up	25%	40%	60%
Percent of toll-free dial-up	45%	70%	85%
Percent of dedicated access	15%	25%	40%
Percent of local dial-up	70%	90%	98%
Percent of toll-free dial-up	15%	25%	35%
Percent of dedicated access	40%	60%	75%
Percent of local dial-up	5%	10%	20%
Percent of toll-free dial-up	1%	3%	5%
Percent of dedicated access	6%	10%	15%

Percentages of state's school districts and the network access they used in spring 1995 and spring 1996 and projections for spring 1997

I State Initiatives Promoting Network Use

State has an initiative to integrate Web resources into state curriculum frameworks
No

State's education agency would consider adopting Web resources as textbooks
*****

State has a safety-net initiative to provide underserved K-12 populations with Internet connectivity
Yes

State education agency currently has a Web site at
http://www.cas.psu.edu/pde.html/

J State's Information *Service Providers in* the Public Sector

Sources in state that provide information services on public networks
all that apply marked bold
State legislature*
Public utility/public service commission
State dept. of education
Community freenets
Public libraries
Higher education
Tax authorities*

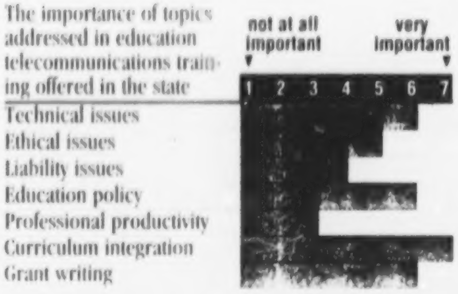
Other sources of public information networks
No

K Telecommunications Training Topics *and Their Importance*

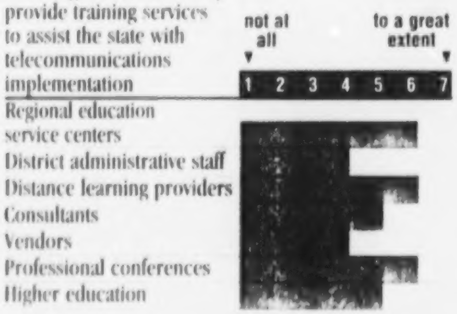
Topics currently addressed in education telecommunications training offered in the state
all that apply marked bold
Technical issues
Ethical issues
Liability issues
Education policy
Professional productivity
Curriculum integration
Grant writing

Other topics addressed in training
No

The importance of topics addressed in education telecommunications training offered in the state



The extent to which the following sources currently provide training services to assist the state with telecommunications implementation



Other sources of training
No

Rhode Island

A Demographics

Number of school districts
37

Number of school buildings
340

Number of K-12 teachers currently employed
14,000

Number of K-12 students currently enrolled
150,000

Number of students in district with largest enrollment
25,000

Number of students in district with smallest enrollment
200

Number of districts with fewer than 1,000 students
*****

For Further Information

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or fiske@ride.ri.net
401-277-4600
(ext. 2153) (phone)
401-277-6033 (fax)

All information current in spring 1996

B Implementation of Telecommunications Plan

State has a long-range telecommunications plan for K-12 education
Yes

If not, state is developing one
NA

Existing K-12 plan is part of a larger, statewide plan
Yes

Percentage of existing K-12 plan currently completed
Less than 25%

Percentage of existing K-12 plan completed one year ago
Less than 25%

State is planning a NetDay to wire schools for Internet access
Yes

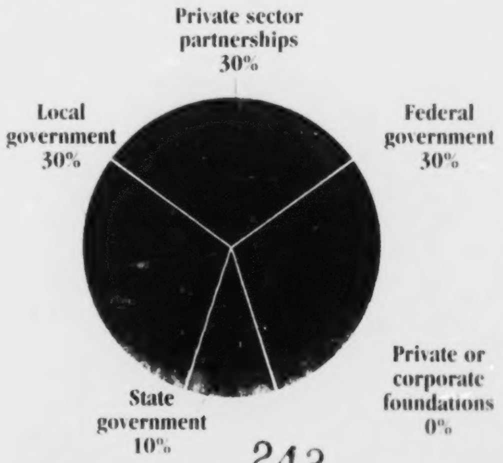
C Current Funding Sources for Network Development

Sources of funding currently available for the development of telecommunications infrastructure for education
all that apply marked bold
Local government
State government
Federal government
Private sector partnerships
Private or corporate foundations

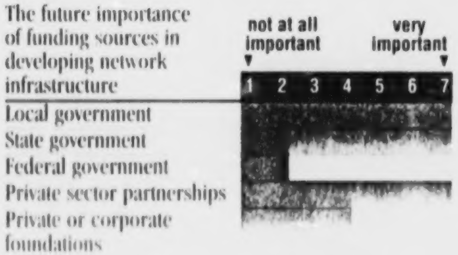
Other current sources of funding
Public television

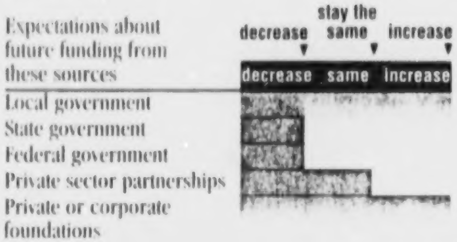
Funding sources and the percentage of funding from those sources used to develop infrastructure of existing educational telecommunications network
presented as a pie chart below

Funding Proportions from Sources

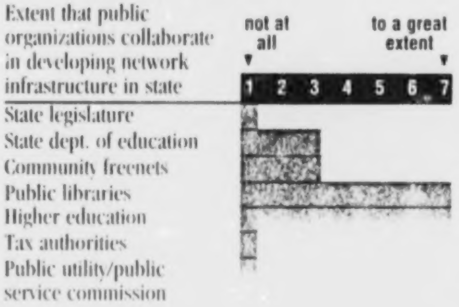


D Importance of Funding Sources and Future Expectations





E Government Collaboration in Infrastructure Development



The state's public utility/public service commission has established special tariffs for K-12 education
Yes

The significance of such tariffs for networking efforts for K-12 education
Very significant

The impact the federal *Telecommunications Act of 1996* will have on state's network development
No effect

F Private Sector Collaboration in K-12 Network Development

Major telecommunications providers have established a program in the state to encourage network infrastructure building
Yes

Specific providers
NYNEX Corporation

Parties that provided the incentives for establishing this program
NYNEX, Rhode Island Public Utilities Commission with guidance from higher education (e.g., Brown University)

Significance of such programs for networking efforts
Very significant

Best way to establish relationships with telecommunications providers to develop state's telecommunications network infrastructure
"The Rhode Island Public Utilities Commission needs to have the authority and wisdom to understand the responsibility of utility carriers and help them understand their obligations."

*"*Don't know" response recorded*

G Current Status of Network Development and Use Statewide

Percent of school districts in state with local dial-up access
100%

Percent of school districts in state with toll-free dial-up access
0%

Percent of school districts in state with dedicated access
45%

Percent of schools in state with a Web site
1%

Percent of K-12 educators who have state-provided or subsidized access to telecommunications networks
100%

Percent of K-12 educators who use these services
35%

Percent of K-12 students who have state-provided or subsidized access to telecommunications networks
0%

Percent of K-12 students who use these services
0%

The state education network provides dial-up network access
Yes

How dial-up access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

The state education network provides dedicated network access
Yes

How dedicated access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

Current network development efforts in state are primarily directed at providing
response marked bold
Dial-up access
Dedicated access
Both dial-up and dedicated access

---

* *"Don't know" response recorded.*

H Network Access 1995 and 1996 and Projected Access 1997

Type of Access	1995	1996	1997
Percent of local dial-up	70%	100%	100%
Percent of toll-free dial-up	0%	0%	0%
Percent of dedicated access	25%	45%	100%
Percent of local dial-up	70%	100%	100%
Percent of toll-free dial-up	0%	0%	0%
Percent of dedicated access	30%	60%	100%
Percent of local dial-up	70%	100%	100%
Percent of toll-free dial-up	0%	0%	0%
Percent of dedicated access	20%	30%	100%

Percentages of state's school districts and the network access they used in spring 1995 and spring 1996 and projections for spring 1997

I State Initiatives Promoting Network Use

State has an initiative to integrate Web resources into state curriculum frameworks
No

State's education agency would consider adopting Web resources as textbooks
No

State has a safety-net initiative to provide underserved K-12 populations with Internet connectivity
Yes

State education agency currently has a Web site at
http://www.ri.net/ride/

J State's Information Service Providers in the Public Sector

Sources in state that provide information services on public networks
all that apply marked bold
State legislature
Public utility/public service commission
State dept. of education
Community freenets
Public libraries
Higher education
Tax authorities

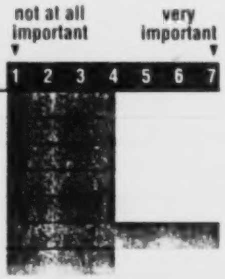
Other sources of public information networks
No

K Telecommunications Training Topics and Their Importance

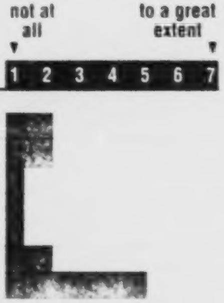
Topics currently addressed in education telecommunications training offered in the state
all that apply marked bold
Technical issues
Ethical issues
Liability issues
Education policy*
Professional productivity
Curriculum integration
Grant writing

Other topics addressed in training
Publishing on networks

The importance of topics addressed in education telecommunications training offered in the state



The extent to which the following sources currently provide training services to assist the state with telecommunications implementation



Other sources of training
Rhode Island department of education and the higher education partnership

RI

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A Demographics

Number of school districts
91

Number of school buildings
1,160

Number of K-12 teachers currently employed
29,000

Number of K-12 students currently enrolled
650,000

Number of students in district with largest enrollment
54,063

Number of students in district with smallest enrollment
518

Number of districts with fewer than 1,000 students
*****

For Further Information

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Rutledge Office Bldg.
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Columbia, South Carolina 29201
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803-734-3079 (phone)
803-734-4387 (fax)

All information current in spring 1996

B Implementation of Telecommunications Plan

State has a long-range telecommunications plan for K-12 education
Yes

If not, state is developing one
NA

Existing K-12 plan is part of a larger, statewide plan
Yes

Percentage of existing K-12 plan currently completed
Less than 25%

Percentage of existing K-12 plan completed one year ago
Less than 25%

State is planning a NetDay to wire schools for Internet access
Yes

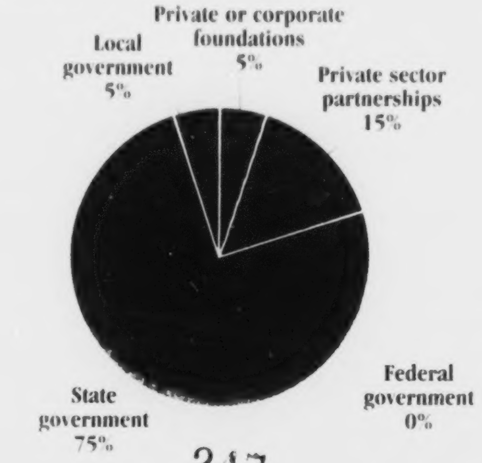
C Current Funding Sources for Network Development

Sources of funding currently available for the development of telecommunications infrastructure for education
all that apply marked bold
Local government
State government
Federal government
Private sector partnerships
Private or corporate foundations

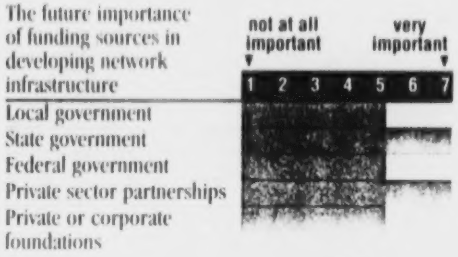
Other current sources of funding
No

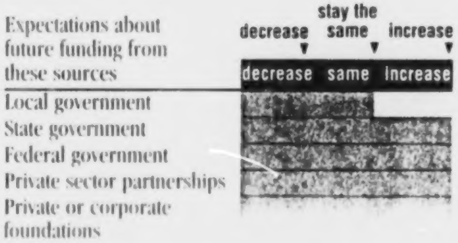
Funding sources and the percentage of funding from those sources used to develop infrastructure of existing educational telecommunications network
presented as a pie chart below

Funding Proportions from Sources

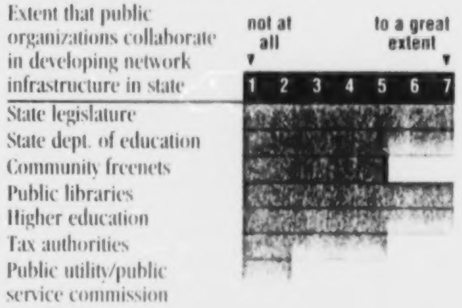


D Importance of Funding Sources and Future Expectations





E Government Collaboration in Infrastructure Development



The state's public utility/public service commission has established special tariffs for K-12 education
No

The significance of such tariffs for networking efforts for K-12 education
Very significant

The impact the federal *Telecommunications Act of 1996* will have on state's network development
Positive impact

F Private Sector Collaboration in K-12 Network Development

Major telecommunications providers have established a program in the state to encourage network infrastructure building
Yes

Specific providers
BellSouth Corporation, AT&T

Parties that provided the incentives for establishing this program
BellSouth, AT&T

Significance of such programs for networking efforts
Very significant

Best way to establish relationships with telecommunications providers to develop state's telecommunications network infrastructure
"Establish partnerships with providers. In South Carolina we have the Light Star Partnership, which is a partnership among 25 South Carolina telecommunications companies and the state."

* *"Don't know" response recorded.*

G Current Status of Network Development and Use Statewide

Percent of school districts in state with local dial-up access
7%

Percent of school districts in state with toll-free dial-up access
*

Percent of school districts in state with dedicated access
5%

Percent of schools in state with a Web site
10%

Percent of K-12 educators who have state-provided or subsidized access to telecommunications networks
0%

Percent of K-12 educators who use these services
0%

Percent of K-12 students who have state-provided or subsidized access to telecommunications networks
5%

Percent of K-12 students who use these services
5%

The state education network provides dial-up network access
No

The state education network provides dedicated network access
Yes

How dedicated access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

Current network development efforts in state are primarily directed at providing
response marked bold
Dial-up access
Dedicated access
Both dial-up and dedicated access

*"Don't know" response recorded

H Network Access 1995 and 1996 and Projected Access 1997

Type of Access	1995	1996	1997
Percent of local dial-up	5%	7%	100%
Percent of toll-free dial-up	*	*	*
Percent of dedicated access	5%	5%	100%
Percent of local dial-up	5%	7%	100%
Percent of toll-free dial-up	*	*	*
Percent of dedicated access	5%	5%	100%
Percent of local dial-up	5%	7%	100%
Percent of toll-free dial-up	*	*	*
Percent of dedicated access	5%	5%	100%

Percentages of state's school districts and the network access they used in spring 1995 and spring 1996 and projections for spring 1997

I State Initiatives Promoting Network Use

State has an initiative to integrate Web resources into state curriculum frameworks
Yes

State's education agency would consider adopting Web resources as textbooks
Yes

State has a safety-net initiative to provide underserved K-12 populations with Internet connectivity
Yes

State education agency currently has a Web site at
http://www.state.sc.us/sde/

J State's Information Service Providers in the Public Sector

Sources in state that provide information services on public networks
all that apply marked bold
State legislature
Public utility/public service commission*
State dept. of education
Community freenets
Public libraries
Higher education
Tax authorities

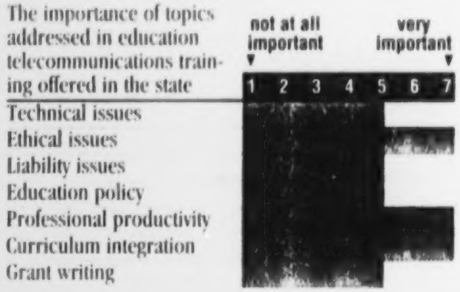
Other sources of public information networks
South Carolina Budget Control Board, Governor's Office, South Carolina legislature

K Telecommunications Training Topics and Their Importance

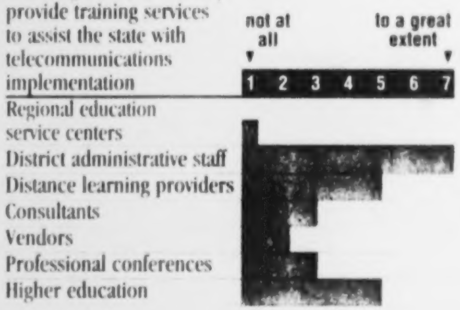
Topics currently addressed in education telecommunications training offered in the state
all that apply marked bold
Technical issues
Ethical issues
Liability issues
Education policy
Professional productivity
Curriculum integration
Grant writing*

Other topics addressed in training
No

The importance of topics addressed in education telecommunications training offered in the state



The extent to which the following sources currently provide training services to assist the state with telecommunications implementation



Other sources of training
South Carolina department of education (13 field service representatives)

249

250

South Dakota

SD

A Demographics

Number of school districts
177

Number of school buildings
700

Number of K-12 teachers currently employed
9,800

Number of K-12 students currently enrolled
155,000

Number of students in district with largest enrollment
18,300

Number of students in district with smallest enrollment
20

Number of districts with fewer than 1,000 students
149

For Further Information

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605-394-1876 (phone)
605-394-5315 (fax)

All information current in spring 1996

B Implementation of Telecommunications Plan

State has a long-range telecommunications plan for K-12 education
No

If not, state is developing one
Yes

Existing K-12 plan is part of a larger, statewide plan
NA

Percentage of existing K-12 plan currently completed
NA

Percentage of existing K-12 plan completed one year ago
NA

State is planning a NetDay to wire schools for Internet access
No

C Current Funding Sources for Network Development

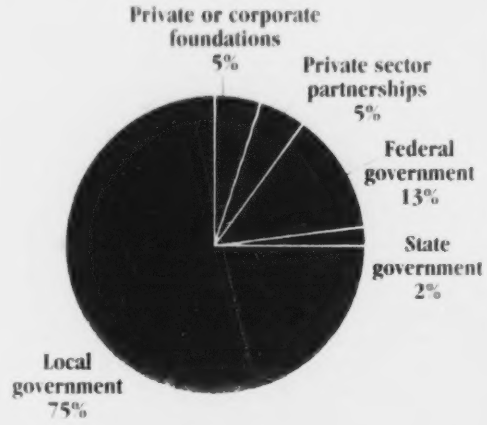
Sources of funding currently available for the development of telecommunications infrastructure for education
all that apply marked bold

Local government
State government
Federal government
Private sector partnerships
Private or corporate foundations

Other current sources of funding
No

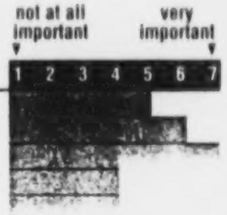
Funding sources and the percentage of funding from those sources used to develop infrastructure of existing educational telecommunications network
presented as a pie chart below

Funding Proportions from Sources

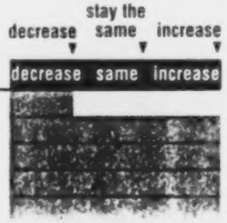


D Importance of Funding Sources and Future Expectations

The future importance of funding sources in developing network infrastructure

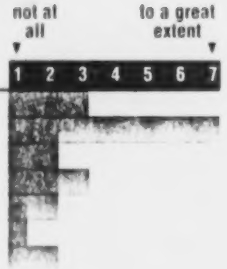


Expectations about future funding from these sources



E Government Collaboration in Infrastructure Development

Extent that public organizations collaborate in developing network infrastructure in state



The state's public utility/public service commission has established special tariffs for K-12 education
No

The significance of such tariffs for networking efforts for K-12 education
Very significant

The impact the federal *Telecommunications Act of 1996* will have on state's network development
Positive impact

F Private Sector Collaboration in K-12 Network Development

Major telecommunications providers have established a program in the state to encourage network infrastructure building
No

Significance of such programs for networking efforts
Very significant

Best way to establish relationships with telecommunications providers to develop state's telecommunications network infrastructure
"Person-to-person, because we have so many individual telecommunications companies in South Dakota. A telecom summit in fall '96 will explore development possibilities."

*"Don't know" response recorded.

G Current Status of Network Development and Use Statewide

Percent of school districts in state with local dial-up access
12%

Percent of school districts in state with toll-free dial-up access
0%

Percent of school districts in state with dedicated access
10%

Percent of schools in state with a Web site
1%

Percent of K-12 educators who have state-provided or subsidized access to telecommunications networks
0%

Percent of K-12 educators who use these services
0%

Percent of K-12 students who have state-provided or subsidized access to telecommunications networks
0%

Percent of K-12 students who use these services
0%

The state education network provides dial-up network access
Yes

How dial-up access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

The state education network provides dedicated network access
No

Current network development efforts in state are primarily directed at providing
response marked bold
Dial-up access
Dedicated access
Both dial-up and dedicated access

H Network Access 1995 and 1996 and Projected Access 1997

Type of Access	1995	1996	1997
Percent of local dial-up	6%	12%	20%
Percent of toll-free dial-up	100%	0%	0%
Percent of dedicated access	0%	10%	30%
Percent of local dial-up	100%	100%	0%
Percent of toll-free dial-up	50%	0%	0%
Percent of dedicated access	0%	50%	100%
Percent of local dial-up	6%	12%	20%
Percent of toll-free dial-up	100%	0%	0%
Percent of dedicated access	0%	10%	30%

Percentages of state's school districts and the network access they used in spring 1995 and spring 1996 and projections for spring 1997

I State Initiatives Promoting Network Use

State has an initiative to integrate Web resources into state curriculum frameworks
*****

State's education agency would consider adopting Web resources as textbooks
Yes

State has a safety-net initiative to provide underserved K-12 populations with Internet connectivity
Yes

State education agency currently has a Web site at
http://www.state.sd.us/state/executive/deca/news.html

J State's Information Service Providers in the Public Sector

Sources in state that provide information services on public networks
all that apply marked bold
State legislature
Public utility/public service commission*
State dept. of education
Community freenets
Public libraries
Higher education
Tax authorities

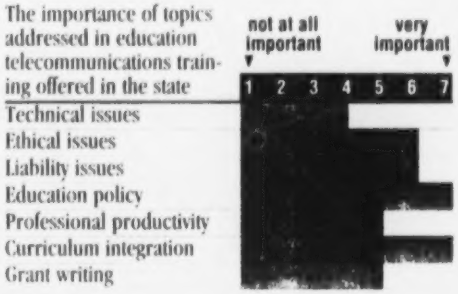
Other sources of public information networks
Technology and Innovation in Education (TIE), a nonprofit organization

K Telecommunications Training Topics and Their Importance

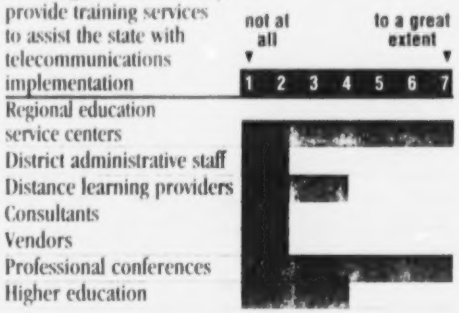
Topics currently addressed in education telecommunications training offered in the state
all that apply marked bold
Technical issues
Ethical issues
Liability issues
Education policy
Professional productivity
Curriculum integration
Grant writing*

Other topics addressed in training
Overall training on using the Internet

The importance of topics addressed in education telecommunications training offered in the state



The extent to which the following sources currently provide training services to assist the state with telecommunications implementation



Other sources of training
No

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*"Don't know" response recorded

Tennessee

TN

A Demographics

Number of school districts
139

Number of school buildings
1,554

Number of K-12 teachers currently employed
48,000

Number of K-12 students currently enrolled
930,000

Number of students in district with largest enrollment
108,000

Number of students in district with smallest enrollment
301

Number of districts with fewer than 1,000 students
13

For Further Information

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Nashville, Tennessee 37243-0381
jshrago@tbr.state.tn.us
615-532-1229 (phone)
615-741-6236 (fax)

All information current in spring 1996

B Implementation of Telecommunications Plan

State has a long-range telecommunications plan for K-12 education
Yes

If not, state is developing one
NA

Existing K-12 plan is part of a larger, statewide plan
Yes

Percentage of existing K-12 plan currently completed
25–49%

Percentage of existing K-12 plan completed one year ago
Less than 25%

State is planning a NetDay to wire schools for Internet access
*****

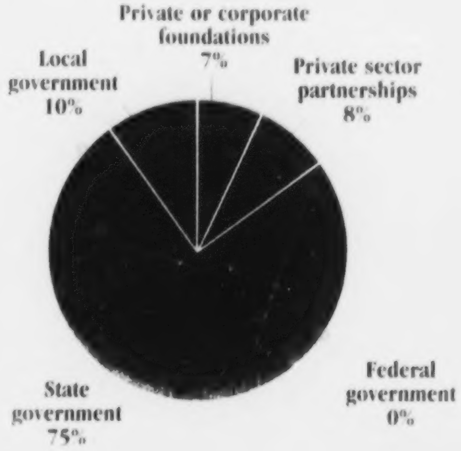
C Current Funding Sources for Network Development

Sources of funding currently available for the development of telecommunications infrastructure for education
all that apply marked bold
Local government
State government
Federal government
Private sector partnerships
Private or corporate foundations

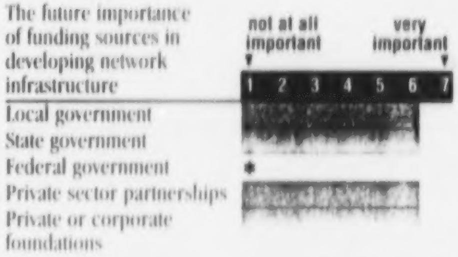
Other current sources of funding
No

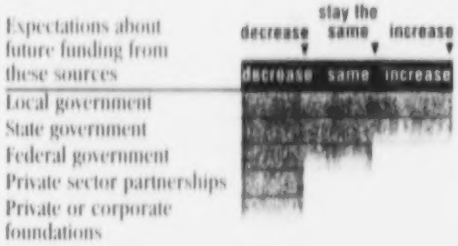
Funding sources and the percentage of funding from those sources used to develop infrastructure of existing educational telecommunications network
presented as a pie chart below

Funding Proportions from Sources

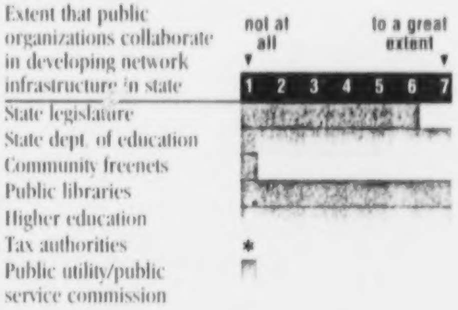


D Importance of Funding Sources and Future Expectations





E Government Collaboration in Infrastructure Development



The state's public utility/public service commission has established special tariffs for K-12 education
*****

The significance of such tariffs for networking efforts for K-12 education
Not at all significant

The impact the federal *Telecommunications Act of 1996* will have on state's network development
Positive impact

F Private Sector Collaboration in K-12 Network Development

Major telecommunications providers have established a program in the state to encourage network infrastructure building
Yes

Specific providers
BellSouth Corporation

Parties that provided the incentives for establishing this program
Tennessee Information Infrastructure under the Tennessee Office of Information Resources

Significance of such programs for networking efforts
Very significant

Best way to establish relationships with telecommunications providers to develop state's telecommunications network infrastructure
"It almost has to be [through] personal and formal meetings and working together over time."

**"Don't know" response recorded*

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G Current Status of Network Development and Use Statewide

Percent of school districts in state with local dial-up access
100%

Percent of school districts in state with toll-free dial-up access
100%

Percent of school districts in state with dedicated access
20%

Percent of schools in state with a Web site
10%

Percent of K-12 educators who have state-provided or subsidized access to telecommunications networks
100%

Percent of K-12 educators who use these services
40%

Percent of K-12 students who have state-provided or subsidized access to telecommunications networks
100%

Percent of K-12 students who use these services
20%

The state education network provides dial-up network access
Yes

How dial-up access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

The state education network provides dedicated network access
Yes

How dedicated access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

Current network development efforts in state are primarily directed at providing
response marked bold
Dial-up access
Dedicated access
Both dial-up and dedicated access

257

H Network Access 1995 and 1996 and Projected Access 1997

Type of Access	1995	1996	1997
Percent of local dial-up	10%	100%	100%
Percent of toll-free dial-up	100%	100%	0%
Percent of dedicated access	10%	20%	99%
Percent of local dial-up	10%	99%	100%
Percent of toll-free dial-up	100%	100%	0%
Percent of dedicated access	10%	30%	99%
Percent of local dial-up	10%	99%	100%
Percent of toll-free dial-up	100%	100%	0%
Percent of dedicated access	10%	20%	99%

Percentages of state's school districts and the network access they used in spring 1995 and spring 1996 and projections for spring 1997

I State Initiatives Promoting Network Use

State has an initiative to integrate Web resources into state curriculum frameworks
Yes

State's education agency would consider adopting Web resources as textbooks
*****

State has a safety-net initiative to provide underserved K-12 populations with Internet connectivity
Yes

State education agency currently has a Web site at
http://www.state.tn.us/other/sde/homepage.html/
or
http://www.state.tn.us/other/sde/travel.html

J State's Information Service Providers in the Public Sector

Sources in state that provide information services on public networks
all that apply marked bold
State legislature
Public utility/public service commission*
State dept. of education
Community freenets*
Public libraries
Higher education
Tax authorities*

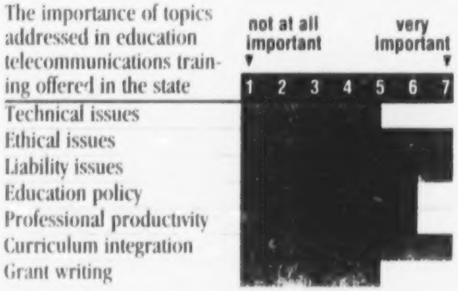
Other sources of public information networks
No

K Telecommunications Training Topics and Their Importance

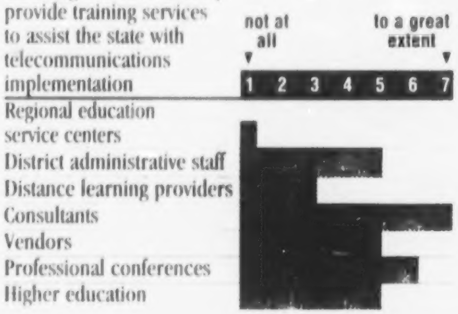
Topics currently addressed in education telecommunications training offered in the state
all that apply marked bold
Technical issues
Ethical issues
Liability issues
Education policy
Professional productivity
Curriculum integration
Grant writing

Other topics addressed in training
No

The importance of topics addressed in education telecommunications training offered in the state



The extent to which the following sources currently provide training services to assist the state with telecommunications implementation



Other sources of training
No

253

---

*"Don't know" response recorded.

TX

Texas

A Demographics

Number of school districts
1,044

Number of school buildings
6,465

Number of K-12 teachers currently employed
234,214

Number of K-12 students currently enrolled
3,670,196

Number of students in district with largest enrollment
181,662

Number of students in district with smallest enrollment
2

Number of districts with fewer than 1,000 students
585

For Further Information

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512-463-9090 (fax)

Connie Stout, *Director*
Texas Education Network (TENET)
UT Austin Research Campus
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Austin, Texas 78758-4497
cstout@tenet.edu
512-475-9440 (phone)
512-475-9445 (fax)

B Implementation of Telecommunications Plan

State has a long-range telecommunications plan for K-12 education
No

If not, state is developing one
Yes

Existing K-12 plan is part of a larger, statewide plan
NA

Percentage of existing K-12 plan currently completed
NA

Percentage of existing K-12 plan completed one year ago
NA

State is planning a NetDay to wire schools for Internet access
Yes

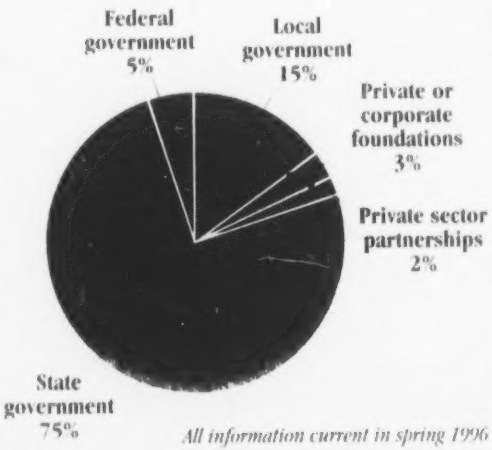
C Current Funding Sources for Network Development

Sources of funding currently available for the development of telecommunications infrastructure for education
all that apply marked bold
Local government
State government
Federal government
Private sector partnerships
Private or corporate foundations

Other current sources of funding
No

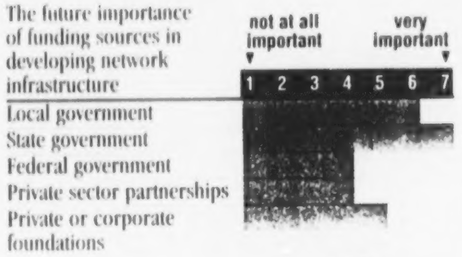
Funding sources and the percentage of funding from those sources used to develop infrastructure of existing educational telecommunications network
presented as a pie chart below

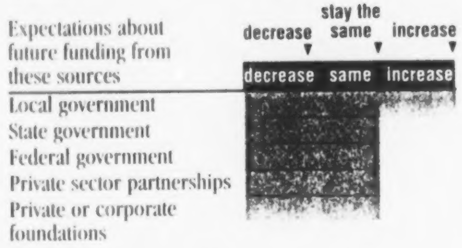
Funding Proportions from Sources



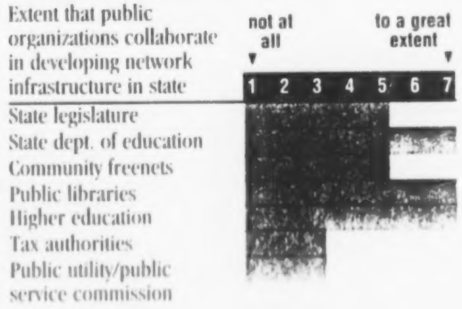
All information current in spring 1996

D Importance of Funding Sources and Future Expectations





E Government Collaboration in Infrastructure Development



The state's public utility/public service commission has established special tariffs for K-12 education
Yes

The significance of such tariffs for networking efforts for K-12 education
Very significant

The impact the federal *Telecommunications Act of 1996* will have on state's network development
Positive impact

F Private Sector Collaboration in K-12 Network Development

Major telecommunications providers have established a program in the state to encourage network infrastructure building
Yes

Specific providers
Southwestern Bell Telephone, GTE

Parties that provided the incentives for establishing this program
Texas state legislature

Significance of such programs for networking efforts
Very significant

Best way to establish relationships with telecommunications providers to develop state's telecommunications network infrastructure
"Police decisions by state leaders so you have that support when approaching telecommunications providers."

* *"Don't know" response recorded.*

G Current Status of Network Development and Use Statewide

Percent of school districts in state with local dial-up access
35%

Percent of school districts in state with toll-free dial-up access
65%

Percent of school districts in state with dedicated access
20%

Percent of schools in state with a Web site
10%

Percent of K-12 educators who have state-provided or subsidized access to telecommunications networks
30%

Percent of K-12 educators who use these services
18%

Percent of K-12 students who have state-provided or subsidized access to telecommunications networks
25%

Percent of K-12 students who use these services
25%

The state education network provides dial-up network access
Yes

How dial-up access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

The state education network provides dedicated network access
Yes

How dedicated access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

Current network development efforts in state are primarily directed at providing
response marked bold
Dial-up access
Dedicated access
Both dial-up and dedicated access

*"Don't know" response recorded

H Network Access 1995 and 1996 and Projected Access 1997

Type of Access	1995	1996	1997
Percent of local dial-up	**35%**	**35%**	**50%**
Percent of toll-free dial-up	**65%**	**65%**	**50%**
Percent of dedicated access	**10%**	**20%**	**30%**
Percent of local dial-up	**100%**	**100%**	**100%**
Percent of toll-free dial-up	**0%**	**0%**	**0%**
Percent of dedicated access	**7%**	**15%**	**30%**
Percent of local dial-up	**5%**	**15%**	**15%**
Percent of toll-free dial-up	**100%**	**100%**	**50%**
Percent of dedicated access	**1%**	**5%**	**25%**

Percentages of state's school districts and the network access they used in spring 1995 and spring 1996 and projections for spring 1997

I State Initiatives Promoting Network Use

State has an initiative to integrate Web resources into state curriculum frameworks
Yes

State's education agency would consider adopting Web resources as textbooks
Yes

State has a safety-net initiative to provide underserved K-12 populations with Internet connectivity
Yes

State education agency currently has a Web site at
http://www.tea.state.tx.us/
or
http://www.tenet.edu/

J State's Information Service Providers in the Public Sector

Sources in state that provide information services on public networks
all that apply marked bold
State legislature
Public utility/public service commission
State dept. of education
Community freenets
Public libraries
Higher education
Tax authorities

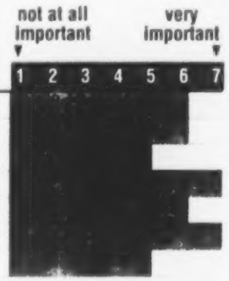
Other sources of public information networks
Texas Parks and Wildlife Department, Texas Natural Resource Conservation Commission, 54 state agencies

K Telecommunications Training Topics and Their Importance

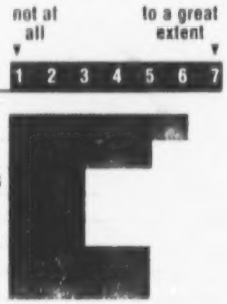
Topics currently addressed in education telecommunications training offered in the state
all that apply marked bold
Technical issues
Ethical issues
Liability issues
Education policy
Professional productivity
Curriculum integration
Grant writing

Other topics addressed in training
Administrative productivity

The importance of topics addressed in education telecommunications training offered in the state



The extent to which the following sources currently provide training services to assist the state with telecommunications implementation



Other sources of training
State department of education, staff of the Texas Education Network (TENET)

UT

Utah

A Demographics

Number of school districts
40

Number of school buildings
750

Number of K-12 teachers currently employed
20,000

Number of K-12 students currently enrolled
470,000

Number of students in district with largest enrollment
76,500

Number of students in district with smallest enrollment
200

Number of districts with fewer than 1,000 students
5

For Further Information

Dr. Vicky Dahn
Coordinator for Utah Dept. of Education
Utah Dept. of Education
250 East Fifth South
Salt Lake City, Utah 84111
vicky.dahn@usoe.k12.ut.us
801-538-7732 (phone)
801-538-7718 (fax)

All information current in spring 1996

B Implementation of Telecommunications Plan

State has a long-range telecommunications plan for K-12 education
Yes

If not, state is developing one
NA

Existing K-12 plan is part of a larger, statewide plan
Yes

Percentage of existing K-12 plan currently completed
50–74%

Percentage of existing K-12 plan completed one year ago
25–49%

State is planning a NetDay to wire schools for Internet access
No

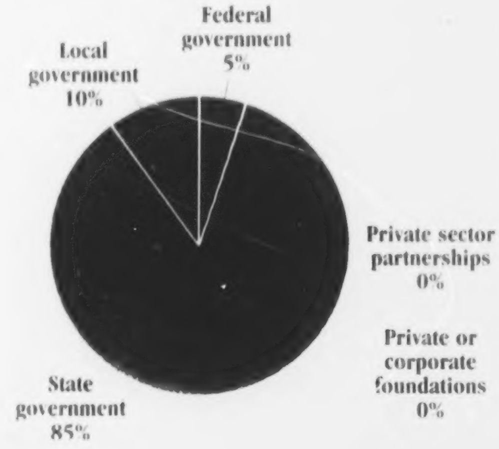
C Current Funding Sources for Network Development

Sources of funding currently available for the development of telecommunications infrastructure for education
all that apply marked bold
Local government
State government
Federal government
Private sector partnerships
Private or corporate foundations

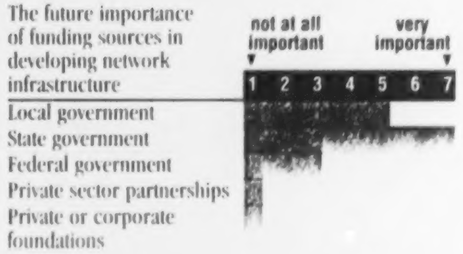
Other current sources of funding
No

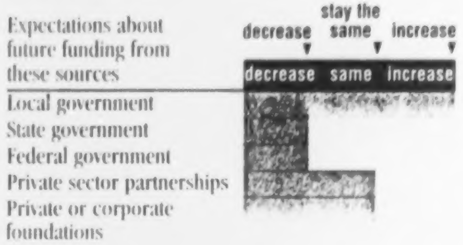
Funding sources and the percentage of funding from those sources used to develop infrastructure of existing educational telecommunications network
presented as a pie chart below

Funding Proportions from Sources

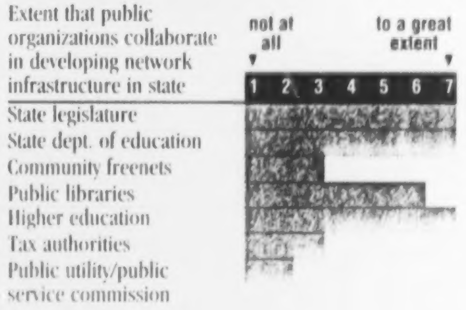


D Importance of Funding Sources and Future Expectations





E Government Collaboration in Infrastructure Development



The state's public utility/public service commission has established special tariffs for K-12 education
No

The significance of such tariffs for networking efforts for K-12 education
Somewhat significant

The impact the federal *Telecommunications Act of 1996* will have on state's network development
No effect

F Private Sector Collaboration in K-12 Network Development

Major telecommunications providers have established a program in the state to encourage network infrastructure building
Yes

Specific providers
US WEST, Inc.

Parties that provided the incentives for establishing this program
"Legislative funding brought them to us."

Significance of such programs for networking efforts
Somewhat significant

Best way to establish relationships with telecommunications providers to develop state's telecommunications network infrastructure
"By having a continuum of open dialogue, speaking to the needs of education, specifically rural school issues; also, keeping providers apprised of our plans publicly, therefore allowing them input."

* *"Don't know" response recorded*

G Current Status of Network Development and Use Statewide

Percent of school districts in state with local dial-up access
30%

Percent of school districts in state with toll-free dial-up access
15%

Percent of school districts in state with dedicated access
50%

Percent of schools in state with a Web site
20%

Percent of K-12 educators who have state-provided or subsidized access to telecommunications networks
100%

Percent of K-12 educators who use these services
30%

Percent of K-12 students who have state-provided or subsidized access to telecommunications networks
65%

Percent of K-12 students who use these services
30%

The state education network provides dial-up network access
Yes

How dial-up access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

The state education network provides dedicated network access
Yes

How dedicated access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

Current network development efforts in state are primarily directed at providing
response marked bold
Dial-up access
Dedicated access
Both dial-up and dedicated access

H Network Access 1995 and 1996 and Projected Access 1997

Type of Access	1995	1996	1997
Percent of local dial-up	10%	30%	75%
Percent of toll-free dial-up	5%	15%	33%
Percent of dedicated access	20%	50%	80%
Percent of local dial-up	10%	30%	75%
Percent of toll-free dial-up	5%	15%	33%
Percent of dedicated access	20%	50%	80%
Percent of local dial-up	10%	30%	75%
Percent of toll-free dial-up	5%	15%	33%
Percent of dedicated access	20%	50%	80%

Percentages of state's school districts and the network access they used in spring 1995 and spring 1996 and projections for spring 1997

I State Initiatives Promoting Network Use

State has an initiative to integrate Web resources into state curriculum frameworks
Yes

State's education agency would consider adopting Web resources as textbooks
Yes

State has a safety-net initiative to provide underserved K-12 populations with Internet connectivity
Yes

State education agency currently has a Web site at
http://www.usoe.k12.ut.us/
or
http://www.uen.org/UtahLink.html

J State's Information Service Providers in the Public Sector

Sources in state that provide information services on public networks
all that apply marked bold
State legislature
Public utility/public service commission
State dept. of education
Community freenets
Public libraries
Higher education
Tax authorities

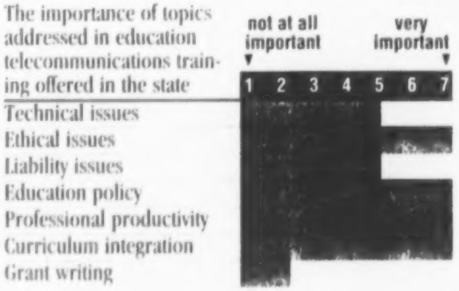
Other sources of public information networks
No

K Telecommunications Training Topics and Their Importance

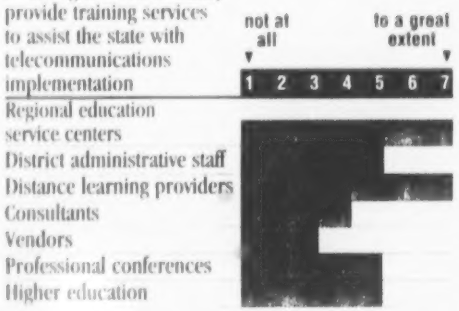
Topics currently addressed in education telecommunications training offered in the state
all that apply marked bold
Technical issues
Ethical issues
Liability issues
Education policy
Professional productivity
Curriculum integration
Grant writing

Other topics addressed in training
No

The importance of topics addressed in education telecommunications training offered in the state



The extent to which the following sources currently provide training services to assist the state with telecommunications implementation



Other sources of training
No

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*"Don't know" response recorded

265

266

A Demographics

Number of school districts
60

Number of school buildings
342

Number of K–12 teachers currently employed
5,500

Number of K–12 students currently enrolled
104,533

Number of students in district with largest enrollment
*****

Number of students in district with smallest enrollment
*****

Number of districts with fewer than 1,000 students
*****

For Further Information

Pat Urban
Governor's Office
State of Vermont
109 State Street
Montpelier, Vermont
05609
802-828-3322 (phone)

All information current in spring 1996

B Implementation of Telecommunications Plan

State has a long-range telecommunications plan for K–12 education
Yes

If not, state is developing one
No

Existing K–12 plan is part of a larger, statewide plan
Yes

Percentage of existing K–12 plan currently completed
25–49%

Percentage of existing K–12 plan completed one year ago
Less than 25%

State is planning a NetDay to wire schools for Internet access
Yes

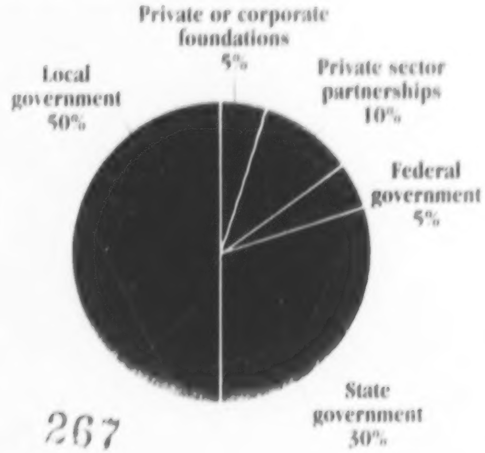
C Current Funding Sources for Network Development

Sources of funding currently available for the development of telecommunications infrastructure for education
all that apply marked bold
Local government
State government
Federal government
Private sector partnerships
Private or corporate foundations

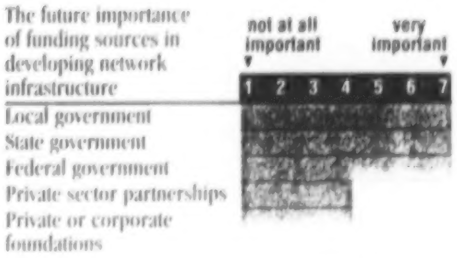
Other current sources of funding
No

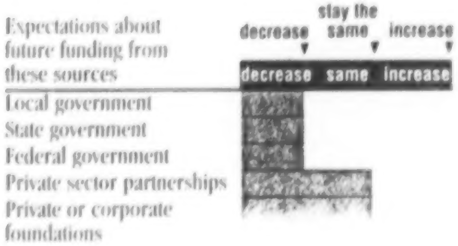
Funding sources and the percentage of funding from those sources used to develop infrastructure of existing educational telecommunications network
presented as a pie chart below

Funding Proportions from Sources

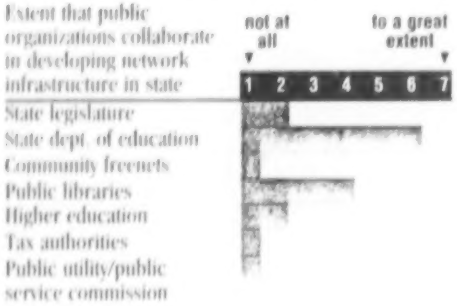


D Importance of Funding Sources and Future Expectations





E Government Collaboration in Infrastructure Development



The state's public utility/public service commission has established special tariffs for K–12 education
*****

The significance of such tariffs for networking efforts for K–12 education
Somewhat significant

The impact the federal *Telecommunications Act of 1996* will have on state's network development
Positive impact

F Private Sector Collaboration in K-12 Network Development

Major telecommunications providers have established a program in the state to encourage network infrastructure building
Yes

Specific providers
NYNEX Corporation

Parties that provided the incentives for establishing this program
Public Service Board of Vermont

Significance of such programs for networking efforts
Very significant

Best way to establish relationships with telecommunications providers to develop state's telecommunications network infrastructure
"We need to bring schools together to meet with providers so they can all express their needs and bargain collectively to come up with affordable solutions."

* *"Don't know" response recorded.*

G Current Status of Network Development and Use Statewide

Percent of school districts in state with local dial-up access
25%

Percent of school districts in state with toll-free dial-up access
0%

Percent of school districts in state with dedicated access
5%

Percent of schools in state with a Web site
5%

Percent of K-12 educators who have state-provided or subsidized access to telecommunications networks
25%

Percent of K-12 educators who use these services
10%

Percent of K-12 students who have state-provided or subsidized access to telecommunications networks
5%

Percent of K-12 students who use these services
5%

The state education network provides dial-up network access
Yes

How dial-up access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

The state education network provides dedicated network access
Yes

How dedicated access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

Current network development efforts in state are primarily directed at providing
response marked bold
Dial-up access
Dedicated access
Both dial-up and dedicated access

*"Don't know" response recorded

H Network Access 1995 and 1996 and Projected Access 1997

Type of Access	1995	1996	1997
Percent of local dial-up	10%	25%	40%
Percent of toll-free dial-up	0%	0%	0%
Percent of dedicated access	2%	5%	8%
Percent of local dial-up	20%	40%	50%
Percent of toll-free dial-up	0%	0%	0%
Percent of dedicated access	10%	20%	25%
Percent of local dial-up	2%	10%	20%
Percent of toll-free dial-up	0%	0%	0%
Percent of dedicated access	1%	1%	2%

Percentages of state's school districts and the network access they used in spring 1995 and spring 1996 and projections for spring 1997

I State Initiatives Promoting Network Use

State has an initiative to integrate Web resources into state curriculum frameworks
Yes

State's education agency would consider adopting Web resources as textbooks
No

State has a safety-net initiative to provide underserved K-12 populations with Internet connectivity
Yes

State education agency currently has a Web site at
http://www.state.vt.us/educ.html/

J State's Information Service Providers in the Public Sector

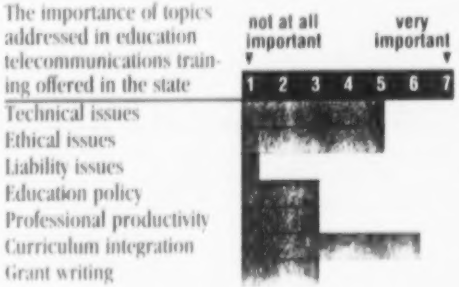
Sources in state that provide information services on public networks
all that apply marked bold
State legislature
Public utility/public service commission
State dept. of education
Community freenets
Public libraries
Higher education
Tax authorities

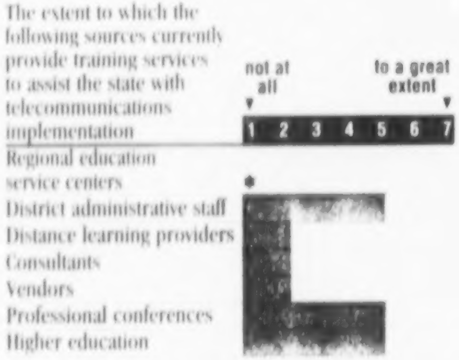
Other sources of public information networks
No

K Telecommunications Training Topics and Their Importance

Topics currently addressed in education telecommunications training offered in the state
all that apply marked bold
Technical issues
Ethical issues
Liability issues
Education policy
Professional productivity
Curriculum integration
Grant writing

Other topics addressed in training
No


The importance of topics addressed in education telecommunications training offered in the state


The extent to which the following sources currently provide training services to assist the state with telecommunications implementation

Other sources of training
No

BEST COPY AVAILABLE

A Demographics

Number of school districts
133

Number of school buildings
1,800

Number of K-12 teachers currently employed
70,000

Number of K-12 students currently enrolled
1,100,000

Number of students in district with largest enrollment
135,000

Number of students in district with smallest enrollment
384

Number of districts with fewer than 1,000 students
7

For Further Information

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Director of Management Information Systems
Virginia Dept. of Education
P.O. Box 2120
Richmond, Virginia 23216-2120
jaulino@pen.k12.va.us
804-225-0099 (phone)
804-371-8978 (fax)

All information current in spring 1996

B Implementation of Telecommunications Plan

State has a long-range telecommunications plan for K-12 education
*****

If not, state is developing one
*****

Existing K-12 plan is part of a larger, statewide plan
NA

Percentage of existing K-12 plan currently completed
NA

Percentage of existing K-12 plan completed one year ago
NA

State is planning a NetDay to wire schools for Internet access
No

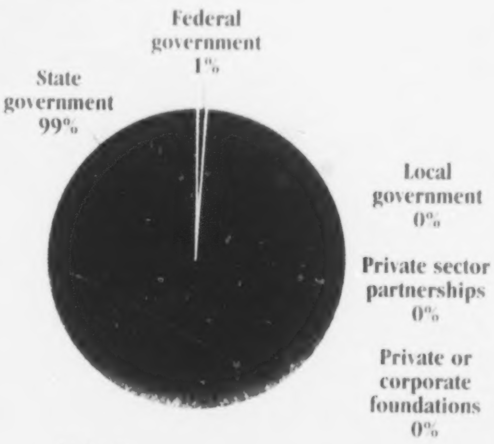
C Current Funding Sources for Network Development

Sources of funding currently available for the development of telecommunications infrastructure for education
all that apply marked bold
Local government
State government
Federal government
Private sector partnerships
Private or corporate foundations

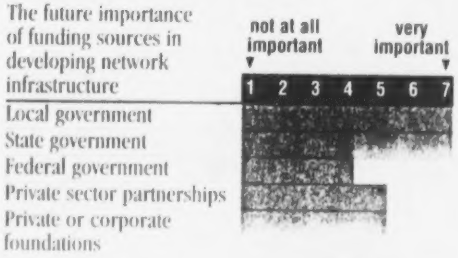
Other current sources of funding
No

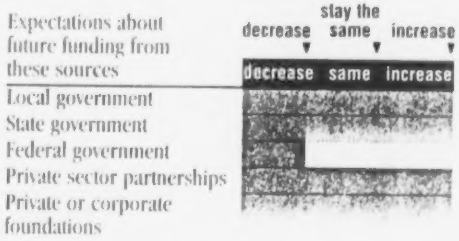
Funding sources and the percentage of funding from those sources used to develop infrastructure of existing educational telecommunications network
presented as a pie chart below

Funding Proportions from Sources

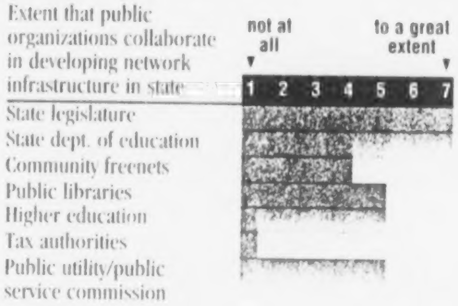


D Importance of Funding Sources and Future Expectations





E Government Collaboration in Infrastructure Development



The state's public utility/public service commission has established special tariffs for K-12 education
No

The significance of such tariffs for networking efforts for K-12 education
Very significant

The impact the federal *Telecommunications Act of 1996* will have on state's network development
Positive impact

F Private Sector Collaboration in K-12 Network Development

Major telecommunications providers have established a program in the state to encourage network infrastructure building
No

Significance of such programs for networking efforts
Very significant

Best way to establish relationships with telecommunications providers to develop state's telecommunications network infrastructure
"Through partnerships of local educators, state agencies, schools, community groups, and private enterprise and through state initiative in implementing [federal]* Telecommunications Act *and getting all parties together in partnership to carry it out."

* *"Don't know" response recorded*

G Current Status of Network Development and Use Statewide

Percent of school districts in state with local dial-up access
100%

Percent of school districts in state with toll-free dial-up access
100%

Percent of school districts in state with dedicated access
15%

Percent of schools in state with a Web site
20%

Percent of K-12 educators who have state-provided or subsidized access to telecommunications networks
100%

Percent of K-12 educators who use these services
18%

Percent of K-12 students who have state-provided or subsidized access to telecommunications networks
1%

Percent of K-12 students who use these services
1%

The state education network provides dial-up network access
Yes

How dial-up access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

The state education network provides dedicated network access
No

Current network development efforts in state are primarily directed at providing
response marked bold
Dial-up access
Dedicated access
Both dial-up and dedicated access

H Network Access 1995 and 1996 and Projected Access 1997

Type of Access	1995	1996	1997
Percent of local dial-up	100%	100%	100%
Percent of toll-free dial-up	100%	100%	100%
Percent of dedicated access	8%	15%	25%
Percent of local dial-up	100%	100%	100%
Percent of toll-free dial-up	100%	100%	100%
Percent of dedicated access	35%	50%	100%
Percent of local dial-up	100%	100%	100%
Percent of toll-free dial-up	100%	100%	100%
Percent of dedicated access	5%	10%	20%

Percentages of state's school districts and the network access they used in spring 1995 and spring 1996 and projections for spring 1997

I State Initiatives Promoting Network Use

State has an initiative to integrate Web resources into state curriculum frameworks
Yes

State's education agency would consider adopting Web resources as textbooks
*

State has a safety-net initiative to provide underserved K-12 populations with Internet connectivity
Yes

State education agency currently has a Web site at
http://www.pen.k12.va.us/go/VDOE/
and
http://www.pen.k12.va.us/go/VDOE/Technology/

J State's Information Service Providers in the Public Sector

Sources in state that provide information services on public networks
all that apply marked bold
State legislature
Public utility/public service commission
State dept. of education
Community freenets
Public libraries
Higher education
Tax authorities

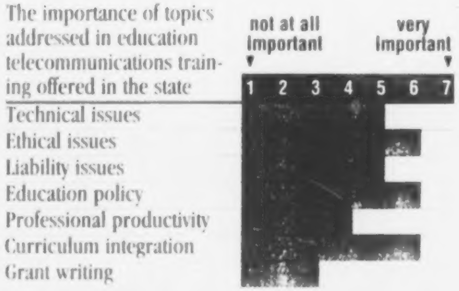
Other sources of public information networks
Department for the Aging, Virginia Auditor of Public Accounts, State Council of Higher Education, Departments of Accounts, Aviation, Conservation and Recreation, Emergency Services, Forestry, Health, and 17 others

K Telecommunications Training Topics and Their Importance

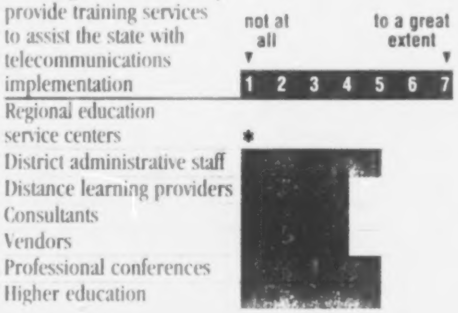
Topics currently addressed in education telecommunications training offered in the state
all that apply marked bold
Technical issues
Ethical issues
Liability issues
Education policy
Professional productivity
Curriculum integration
Grant writing

Other topics addressed in training
No

The importance of topics addressed in education telecommunications training offered in the state



The extent to which the following sources currently provide training services to assist the state with telecommunications implementation



Other sources of training
State of Virginia and other professional organizations

---

* "Don't know" response recorded

273

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274

WA

Washington

A Demographics

Number of school districts
296

Number of school buildings
1,830

Number of K-12 teachers currently employed
55,246

Number of K-12 students currently enrolled
938,314

Number of students in district with largest enrollment
46,565

Number of students in district with smallest enrollment
6

Number of districts with fewer than 1,000 students
140

For Further Information

Dennis Small
Education Telecommunications Supervisor
Office of Superintendent of Public Instruction
P.O. Box 47200
Old Capitol Building
Olympia, Washington 98504-7200
dsmall@ospi.wednet.edu
360-664-3111 (phone)
360-586-3894 (fax)

All information current in spring 1996

B Implementation of Telecommunications Plan

State has a long-range telecommunications plan for K-12 education
Yes

If not, state is developing one
NA

Existing K-12 plan is part of a larger, statewide plan
Yes

Percentage of existing K-12 plan currently completed
25–49%

Percentage of existing K-12 plan completed one year ago
Less than 25%

State is planning a NetDay to wire schools for Internet access
Yes

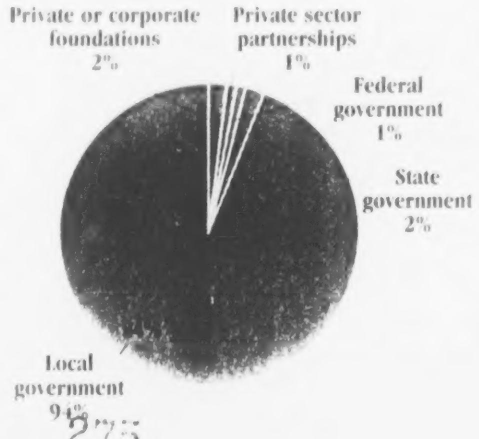
C Current Funding Sources for Network Development

Sources of funding currently available for the development of telecommunications infrastructure for education
all that apply marked bold
Local government
State government
Federal government
Private sector partnerships
Private or corporate foundations

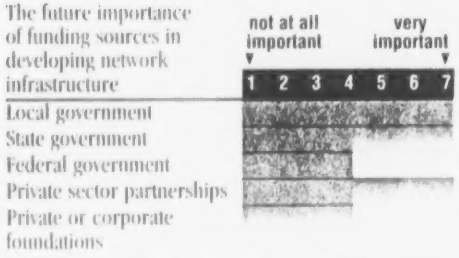
Other current sources of funding
Washington School of Information Processing Cooperative (WEDNET)

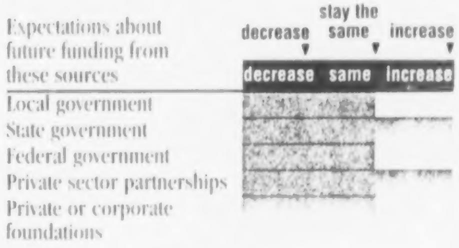
Funding sources and the percentage of funding from those sources used to develop infrastructure of existing educational telecommunications network
presented as a pie chart below

Funding Proportions from Sources

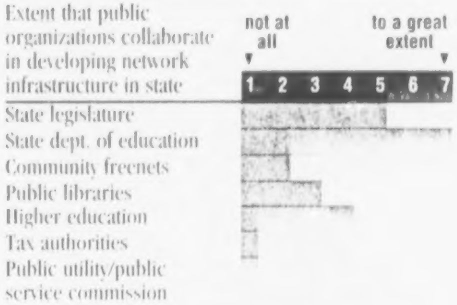


D Importance of Funding Sources and Future Expectations





E Government Collaboration in Infrastructure Development



The state's public utility/public service commission has established special tariffs for K-12 education
No

The significance of such tariffs for networking efforts for K-12 education
Very significant

The impact the federal *Telecommunications Act of 1996* will have on state's network development
Positive impact

F Private Sector Collaboration in K-12 Network Development

Major telecommunications providers have established a program in the state to encourage network infrastructure building
No

Significance of such programs for networking efforts
Somewhat significant

Best way to establish relationships with telecommunications providers to develop state's telecommunications network infrastructure
"Working collaboratively to ensure affordable and equitable access and a reasonable rate of return for private providers."

*"Don't know" response recorded

G Current Status of Network Development and Use Statewide

Percent of school districts in state with local dial-up access
60%

Percent of school districts in state with toll-free dial-up access
0%

Percent of school districts in state with dedicated access
39%

Percent of schools in state with a Web site
18%

Percent of K-12 educators who have state-provided or subsidized access to telecommunications networks
25%

Percent of K-12 educators who use these services
20%

Percent of K-12 students who have state-provided or subsidized access to telecommunications networks
4%

Percent of K-12 students who use these services
4%

The state education network provides dial-up network access
Yes

How dial-up access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

The state education network provides dedicated network access
Yes

How dedicated access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

Current network development efforts in state are primarily directed at providing
response marked bold
Dial-up access
Dedicated access
Both dial-up and dedicated access

H Network Access 1995 and 1996 and Projected Access 1997

Type of Access	1995	1996	1997
Percent of local dial-up	35%	60%	90%
Percent of toll-free dial-up	0%	0%	0%
Percent of dedicated access	11%	39%	60%
Percent of local dial-up	50%	95%	100%
Percent of toll-free dial-up	0%	0%	0%
Percent of dedicated access	30%	60%	80%
Percent of local dial-up	20%	50%	75%
Percent of toll-free dial-up	0%	0%	0%
Percent of dedicated access	10%	25%	50%

Percentages of state's school districts and the network access they used in spring 1995 and spring 1996 and projections for spring 1997

I State Initiatives Promoting Network Use

State has an initiative to integrate Web resources into state curriculum frameworks
Yes

State's education agency would consider adopting Web resources as textbooks
*****

State has a safety-net initiative to provide underserved K-12 populations with Internet connectivity
Yes

State education agency currently has a Web site at
http://www.ospi.wednet.edu/

J State's Information Service Providers in the Public Sector

Sources in state that provide information services on public networks
all that apply marked bold
State legislature
Public utility/public service commission
State dept. of education
Community freenets
Public libraries
Higher education
Tax authorities

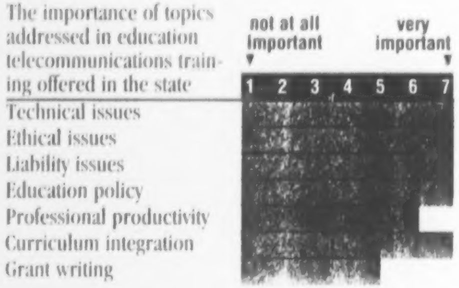
Other sources of public information networks
Washington School of Information Processing Cooperative (WEDNET)

K Telecommunications Training Topics and Their Importance

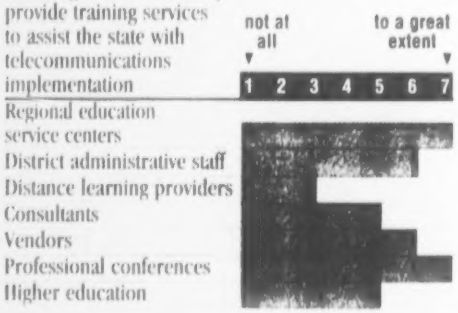
Topics currently addressed in education telecommunications training offered in the state
all that apply marked bold
Technical issues
Ethical issues
Liability issues
Education policy
Professional productivity
Curriculum integration
Grant writing

Other topics addressed in training
Essential learning and school improvement

The importance of topics addressed in education telecommunications training offered in the state



The extent to which the following sources currently provide training services to assist the state with telecommunications implementation



Other sources of training
Washington School of Information Processing Cooperative (WEDNET)

---

*"Don't know" response recorded

West Virginia

A Demographics

Number of school districts
55

Number of school buildings
873

Number of K-12 teachers currently employed
20,915

Number of K-12 students currently enrolled
307,508

Number of students in district with largest enrollment
33,500

Number of students in district with smallest enrollment
1,150

Number of districts with fewer than 1,000 students
0

For Further Information

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Telecommunications Specialist
West Virginia Dept. of Education
Building Six, Room 346
1900 Kanawha Blvd. E.
Charleston, West Virginia 25305-0330
pjustice@access.k12.wv.us
304-558-0304 (phone)
304-558-2584 (fax)

All information current in spring 1996

B Implementation of Telecommunications Plan

State has a long-range telecommunications plan for K-12 education
Yes

If not, state is developing one
NA

Existing K-12 plan is part of a larger, statewide plan
Yes

Percentage of existing K-12 plan currently completed
25–49%

Percentage of existing K-12 plan completed one year ago
Less than 25%

State is planning a NetDay to wire schools for Internet access
Yes

C Current Funding Sources for Network Development

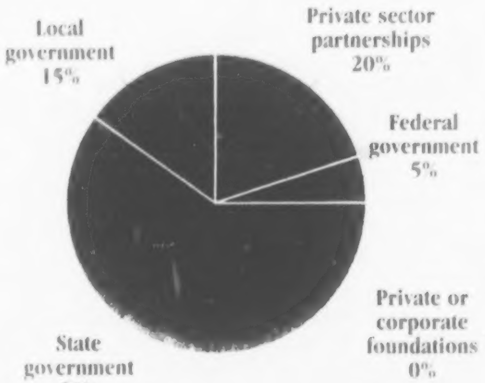
Sources of funding currently available for the development of telecommunications infrastructure for education
all that apply marked bold

Local government
State government
Federal government
Private sector partnerships
Private or corporate foundations*

Other current sources of funding
No

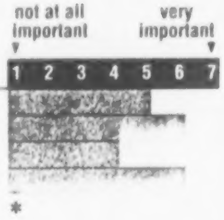
Funding sources and the percentage of funding from those sources used to develop infrastructure of existing educational telecommunications network
presented as a pie chart below

Funding Proportions from Sources

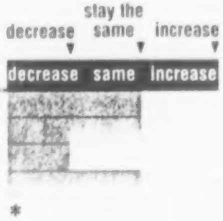


D Importance of Funding Sources and Future Expectations

The future importance of funding sources in developing network infrastructure

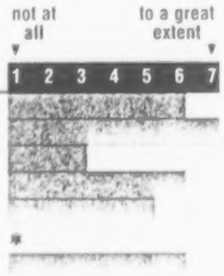


Expectations about future funding from these sources



E Government Collaboration in Infrastructure Development

Extent that public organizations collaborate in developing network infrastructure in state



The state's public utility/public service commission has established special tariffs for K-12 education
No

The significance of such tariffs for networking efforts for K-12 education
Very significant

The impact the federal *Telecommunications Act of 1996* will have on state's network development
Positive impact

F Private Sector Collaboration in K-12 Network Development

Major telecommunications providers have established a program in the state to encourage network infrastructure building
Yes

Specific providers
Bell Atlantic Corporation, Hardy Phone Company, Mountain Net

Parties that provided the incentives for establishing this program
Bell Atlantic, Hardy Phone Company, Mountain Net, Public Service Commission of West Virginia

Significance of such programs for networking efforts
Very significant

Best way to establish relationships with telecommunications providers to develop state's telecommunications network infrastructure
"We've continued to work with providers, phone companies, Internet providers, and the public service commission in keeping the lines of communication open."

280

*"Don't know" response recorded

G Current Status of Network Development and Use Statewide

Percent of school districts in state with local dial-up access
2%

Percent of school districts in state with toll-free dial-up access
0%

Percent of school districts in state with dedicated access
26%

Percent of schools in state with a Web site
4%

Percent of K-12 educators who have state-provided or subsidized access to telecommunications networks
50%

Percent of K-12 educators who use these services
25%

Percent of K-12 students who have state-provided or subsidized access to telecommunications networks
50%

Percent of K-12 students who use these services
10%

The state education network provides dial-up network access
Yes

How dial-up access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

The state education network provides dedicated network access
Yes

How dedicated access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

Current network development efforts in state are primarily directed at providing
response marked bold
Dial-up access
Dedicated access
Both dial-up and dedicated access

H Network Access 1995 and 1996 and Projected Access 1997

Type of Access	1995	1996	1997
Percent of local dial-up	1%	2%	10%
Percent of toll-free dial-up	0%	0%	10%
Percent of dedicated access	10%	26%	60%
Percent of local dial-up	1%	2%	10%
Percent of toll-free dial-up	0%	0%	2%
Percent of dedicated access	10%	26%	60%
Percent of local dial-up	1%	2%	10%
Percent of toll-free dial-up	0%	0%	8%
Percent of dedicated access	10%	26%	60%

Percentages of state's school districts and the network access they used in spring 1995 and spring 1996 and projections for spring 1997

I State Initiatives Promoting Network Use

State has an initiative to integrate Web resources into state curriculum frameworks
Yes

State's education agency would consider adopting Web resources as textbooks
Yes

State has a safety-net initiative to provide underserved K-12 populations with Internet connectivity
Yes

State education agency currently has a Web site at
http://www.wvnet.edu/
or
http://access.k12.wv.us/

J State's Information Service Providers in the Public Sector

Sources in state that provide information services on public networks
all that apply marked bold
State legislature*
Public utility/public service commission*
State dept. of education
Community freenets
Public libraries
Higher education
Tax authorities*

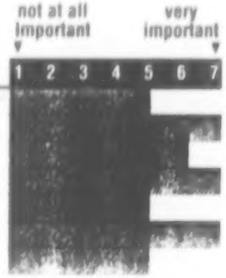
Other sources of public information networks
No

K Telecommunications Training Topics and Their Importance

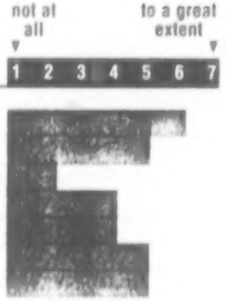
Topics currently addressed in education telecommunications training offered in the state
all that apply marked bold
Technical issues
Ethical issues
Liability issues
Education policy
Professional productivity
Curriculum integration
Grant writing

Other topics addressed in training
No

The importance of topics addressed in education telecommunications training offered in the state



The extent to which the following sources currently provide training services to assist the state with telecommunications implementation



Other sources of training
West Virginia department of education

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* *"Don't know" response recorded.*

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Wisconsin

A Demographics

Number of school districts
426

Number of school buildings
2,034

Number of K-12 teachers currently employed
63,531

Number of K-12 students currently enrolled
860,686

Number of students in district with largest enrollment
98,000

Number of students in district with smallest enrollment
118

Number of districts with fewer than 1,000 students
164

For Further Information

Jody McCann
Dept. of Administration
101 East Wilson Street
Madison, Wisconsin
53707
mccanj@mail.state.wi.us
608-266-6700 (phone)

All information current in spring 1996

B Implementation of Telecommunications Plan

State has a long-range telecommunications plan for K-12 education
No

If not, state is developing one
Yes

Existing K-12 plan is part of a larger, statewide plan
NA

Percentage of existing K-12 plan currently completed
NA

Percentage of existing K-12 plan completed one year ago
NA

State is planning a NetDay to wire schools for Internet access
Yes

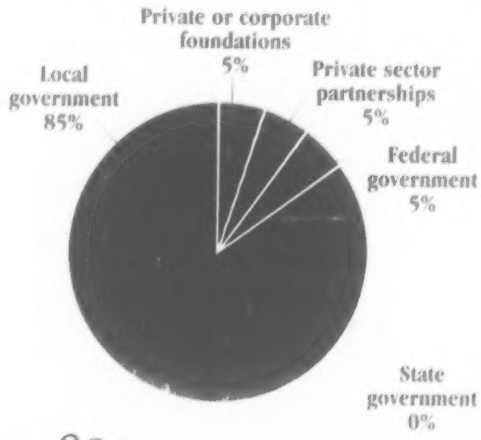
C Current Funding Sources for Network Development

Sources of funding currently available for the development of telecommunications infrastructure for education
all that apply marked bold
Local government
State government
Federal government
Private sector partnerships
Private or corporate foundations

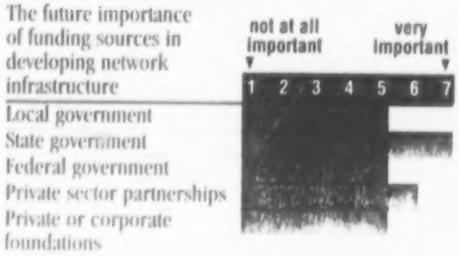
Other current sources of funding
No

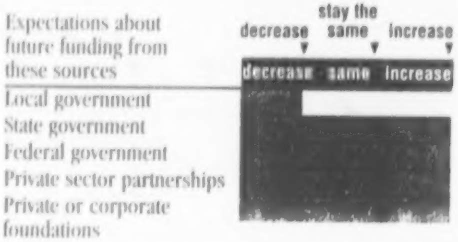
Funding sources and the percentage of funding from those sources used to develop infrastructure of existing educational telecommunications network
presented as a pie chart below

Funding Proportions from Sources

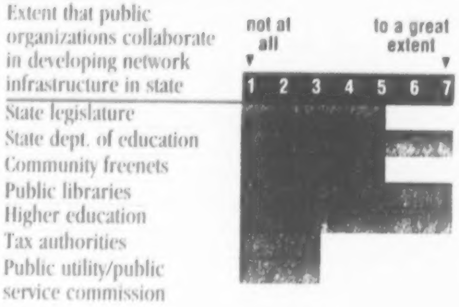


D Importance of Funding Sources and Future Expectations





E Government Collaboration in Infrastructure Development



The state's public utility/public service commission has established special tariffs for K-12 education
No

The significance of such tariffs for networking efforts for K-12 education
Very significant

The impact the federal *Telecommunications Act of 1996* will have on state's network development
Positive impact

F Private Sector Collaboration in K-12 Network Development

Major telecommunications providers have established a program in the state to encourage network infrastructure building
Yes

Specific providers
Americtech Corporation, GTE

Parties that provided the incentives for establishing this program
Americtech, GTE

Significance of such programs for networking efforts
Somewhat significant

Best way to establish relationships with telecommunications providers to develop state's telecommunications network infrastructure
"Through community-based involvements and exemption from revenue spending caps on technology."

---

*"Don't know" response recorded.

G Current Status of Network Development and Use Statewide

Percent of school districts in state with local dial-up access
50%

Percent of school districts in state with toll-free dial-up access
0%

Percent of school districts in state with dedicated access
2%

Percent of schools in state with a Web site
20%

Percent of K-12 educators who have state-provided or subsidized access to telecommunications networks
2%

Percent of K-12 educators who use these services
2%

Percent of K-12 students who have state-provided or subsidized access to telecommunications networks
0%

Percent of K-12 students who use these services
0%

The state education network provides dial-up network access
NA
"No state telecommunications network—higher education network only."

The state education network provides dedicated network access
NA

Current network development efforts in state are primarily directed at providing
response marked bold
Dial-up access
Dedicated access
Both dial-up and dedicated access

H Network Access 1995 and 1996 and Projected Access 1997

Type of Access	1995	1996	1997
Percent of local dial-up	30%	50%	75%
Percent of toll-free dial-up	0%	0%	0%
Percent of dedicated access	0%	2%	15%
Percent of local dial-up	45%	60%	80%
Percent of toll-free dial-up	0%	0%	0%
Percent of dedicated access	0%	1%	12%
Percent of local dial-up	30%	50%	75%
Percent of toll-free dial-up	0%	0%	0%
Percent of dedicated access	1%	2%	3%

Percentages of state's school districts and the network access they used in spring 1995 and spring 1996 and projections for spring 1997

I State Initiatives Promoting Network Use

State has an initiative to integrate Web resources into state curriculum frameworks
No

State's education agency would consider adopting Web resources as textbooks
No

State has a safety-net initiative to provide underserved K-12 populations with Internet connectivity
Yes

State education agency currently has a Web site at
http://www.state.wi.us/agencies/dpi/

J State's Information Service Providers in the Public Sector

Sources in state that provide information services on public networks
all that apply marked bold
State legislature
Public utility/public service commission
State dept. of education
Community freenets
Public libraries
Higher education
Tax authorities

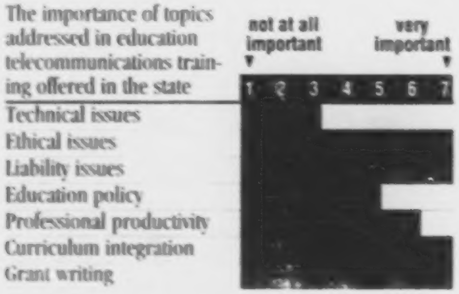
Other sources of public information networks
No

K Telecommunications Training Topics and Their Importance

Topics currently addressed in education telecommunications training offered in the state
all that apply marked bold
Technical issues
Ethical issues
Liability issues
Education policy*
Professional productivity*
Curriculum integration
Grant writing*

Other topics addressed in training
Professional development

The importance of topics addressed in education telecommunications training offered in the state



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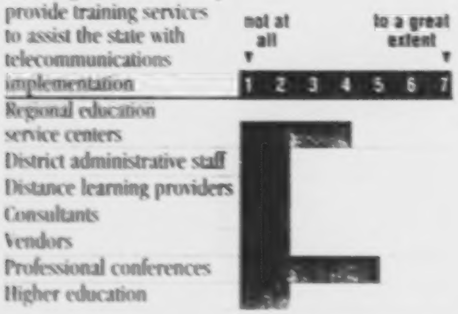

Other sources of training
Wisconsin department of education

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WI

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* *"Don't know" response recorded.*

A Demographics

Number of school districts
49

Number of school buildings
480

Number of K-12 teachers currently employed
*

Number of K-12 students currently enrolled
180,000

Number of students in district with largest enrollment
*

Number of students in district with smallest enrollment
*

Number of districts with fewer than 1,000 students
*

For Further Information

Linda Carter
Federal Programs Consultant
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2300 Capitol Avenue
Cheyenne, Wyoming 82002
lcarter@educ.state.wy.us
303-777-6252 (phone)
303-777-6234 (fax)

All information current in spring 1996

B Implementation of Telecommunications Plan

State has a long-range telecommunications plan for K-12 education
No

If not, state is developing one
Yes

Existing K-12 plan is part of a larger, statewide plan
NA

Percentage of existing K-12 plan currently completed
NA

Percentage of existing K-12 plan completed one year ago
NA

State is planning a NetDay to wire schools for Internet access
No

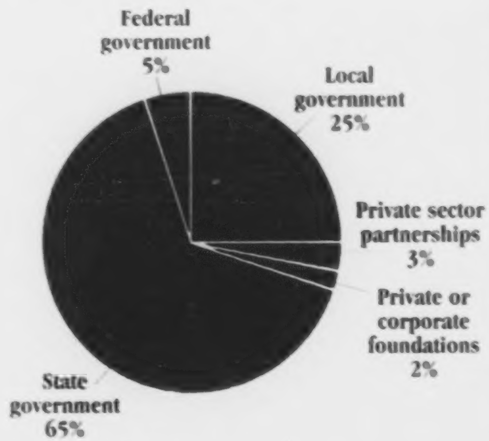
C Current Funding Sources for Network Development

Sources of funding currently available for the development of telecommunications infrastructure for education
all that apply marked bold
Local government
State government
Federal government
Private sector partnerships
Private or corporate foundations

Other current sources of funding
Municipal bonds

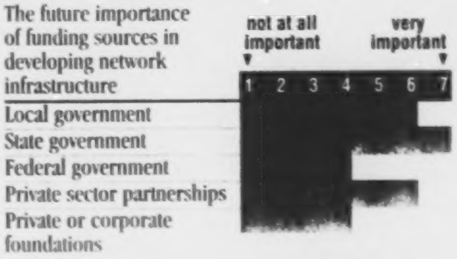
Funding sources and the percentage of funding from those sources used to develop infrastructure of existing educational telecommunications network
presented as a pie chart below

Funding Proportions from Sources

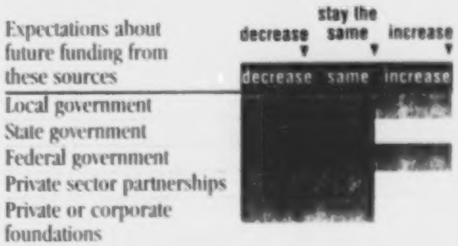


D Importance of Funding Sources and Future Expectations

The future importance of funding sources in developing network infrastructure

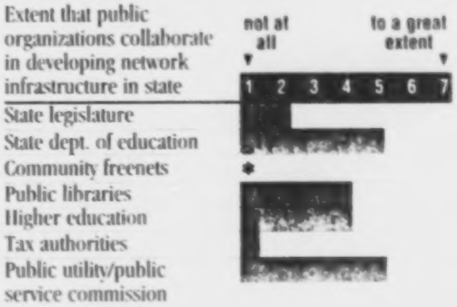


Expectations about future funding from these sources



E Government Collaboration in Infrastructure Development

Extent that public organizations collaborate in developing network infrastructure in state



The state's public utility/public service commission has established special tariffs for K-12 education
No

The significance of such tariffs for networking efforts for K-12 education
*

The impact the federal *Telecommunications Act of 1996* will have on state's network development
Positive impact

F Private Sector Collaboration in K-12 Network Development

Major telecommunications providers have established a program in the state to encourage network infrastructure building
No

Significance of such programs for networking efforts
Very significant

Best way to establish relationships with telecommunications providers to develop state's telecommunications network infrastructure
"The best way is to do it in partnership—a give and take. The main thing is negotiation."

---

*"Don't know" response recorded

G Current Status of Network Development and Use Statewide

Percent of school districts in state with local dial-up access
*

Percent of school districts in state with toll-free dial-up access
*

Percent of school districts in state with dedicated access
25%

Percent of schools in state with a Web site
9%

Percent of K-12 educators who have state-provided or subsidized access to telecommunications networks
0%

Percent of K-12 educators who use these services
0%

Percent of K-12 students who have state-provided or subsidized access to telecommunications networks
0%

Percent of K-12 students who use these services
0%

The state education network provides dial-up network access
No

The state education network provides dedicated network access
No

Current network development efforts in state are primarily directed at providing
response marked bold
Dial-up access
Dedicated access
Both dial-up and dedicated access

*"Don't know" response recorded

H Network Access 1995 and 1996 and Projected Access 1997

Type of Access	1995	1996	1997
Percent of local dial-up	*	*	*
Percent of toll-free dial-up	*	*	*
Percent of dedicated access	15%	25%	50%
Percent of local dial-up	*	*	*
Percent of toll-free dial-up	*	*	*
Percent of dedicated access	15%	25%	50%
Percent of local dial-up	*	*	*
Percent of toll-free dial-up	*	*	*
Percent of dedicated access	15%	25%	50%

Percentages of state's school districts and the network access they used in spring 1995 and spring 1996 and projections for spring 1997

I State Initiatives Promoting Network Use

State has an initiative to integrate Web resources into state curriculum frameworks
No

State's education agency would consider adopting Web resources as textbooks
No

State has a safety-net initiative to provide underserved K-12 populations with Internet connectivity
No

State education agency currently has a Web site at
http://www.k12.wy.us/

J State's Information Service Providers in the Public Sector

Sources in state that provide information services on public networks
all that apply marked bold
State legislature
Public utility/public service commission*
State dept. of education
Community freenets
Public libraries
Higher education*
Tax authorities*

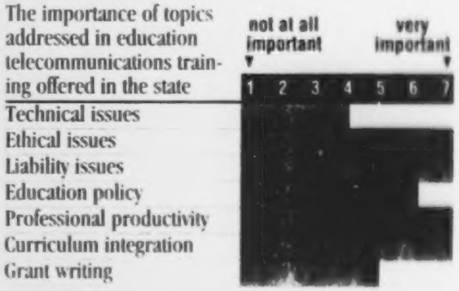
Other sources of public information networks
No

K Telecommunications Training Topics and Their Importance

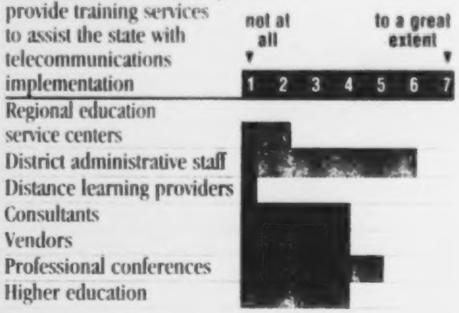
Topics currently addressed in education telecommunications training offered in the state
all that apply marked bold
Technical issues
Ethical issues*
Liability issues
Education policy
Professional productivity
Curriculum integration
Grant writing

Other topics addressed in training
No

The importance of topics addressed in education telecommunications training offered in the state



The extent to which the following sources currently provide training services to assist the state with telecommunications implementation



Other sources of training
No

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Puerto Rico

A Demographics

Number of school districts
NA

Number of school buildings
*****

Number of K-12 teachers currently employed
*****

Number of K-12 students currently enrolled
*****

Number of students in district with largest enrollment
*****

Number of students in district with smallest enrollment
*****

Number of districts with fewer than 1,000 students
*****

For Further Information

Victor Fajardo
Secretary
Puerto Rico Dept. of Education
787-759-2000 (phone)

All information current in spring 1996

B Implementation of Telecommunications Plan

Puerto Rico has a long-range telecommunications plan for K-12 education
Yes

If not, Puerto Rico is developing one
NA

Existing K-12 plan is part of a larger, nationwide plan
Yes

Percentage of existing K-12 plan currently completed
Less than 25%

Percentage of existing K-12 plan completed one year ago
Less than 25%

Puerto Rico is planning a NetDay to wire schools for Internet access
Yes

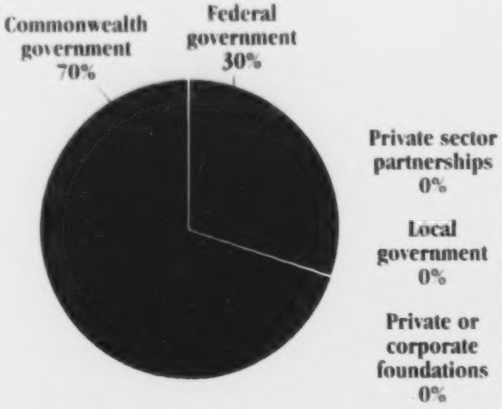
C Current Funding Sources for Network Development

Sources of funding currently available for the development of telecommunications infrastructure for education
all that apply marked bold
Local government
Commonwealth government
Federal government
Private sector partnerships
Private or corporate foundations

Other current sources of funding
No

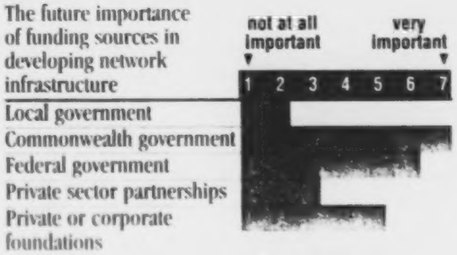
Funding sources and the percentage of funding from those sources used to develop infrastructure of existing educational telecommunications network
presented as a pie chart below

Funding Proportions from Sources

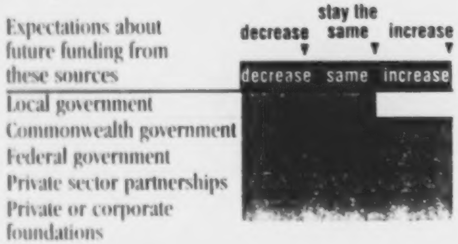


D Importance of Funding Sources and Future Expectations

The future importance of funding sources in developing network infrastructure

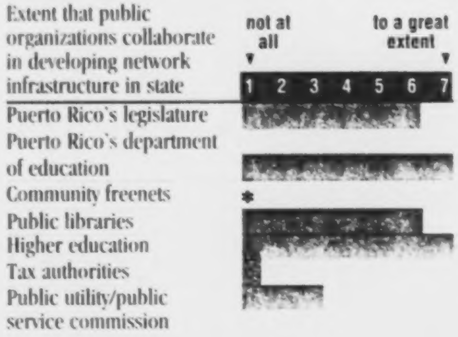


Expectations about future funding from these sources



E Government Collaboration in Infrastructure Development

Extent that public organizations collaborate in developing network infrastructure in state



Puerto Rico's public utility/public service commission has established special tariffs for K-12 education
No

The significance of such tariffs for networking efforts for K-12 education
Very significant

The impact the federal *Telecommunications Act of 1996* will have on Puerto Rico's network development
Positive impact

F Private Sector Collaboration in K-12 Network Development

Major telecommunications providers have established a program in Puerto Rico to encourage network infrastructure building
No

Significance of such programs for networking efforts
Very significant

Best way to establish relationships with telecommunications providers to develop Puerto Rico's telecommunications network infrastructure
"Make contact and try to sell the benefits to the whole country and, therefore, to themselves."

* *"Don't know" response recorded.*

G Current Status of Network Development and Use in Puerto Rico

Percent of school districts in Puerto Rico with local dial-up access
2%

Percent of school districts in Puerto Rico with toll-free dial-up access
2%

Percent of school districts in Puerto Rico with dedicated access
0%

Percent of schools in Puerto Rico with a Web site
0%

Percent of Puerto Rico's K-12 educators who have state-provided or subsidized access to telecommunications networks
2%

Percent of K-12 educators who use these services
1%

Percent of Puerto Rico's K-12 students who have state-provided or subsidized access to telecommunications networks
0%

Percent of K-12 students who use these services
0%

Puerto Rico's education network provides dial-up network access
Yes

How dial-up access is used
all that apply marked bold
Administrative functions at the district level
Administrative functions at the campus level
Classroom instruction
Student resource

Puerto Rico's education network provides dedicated network access
No

Current network development efforts in Puerto Rico are primarily directed at providing
response marked bold
Dial-up access
Dedicated access
Both dial-up and dedicated access

*"Don't know" response recorded

H Network Access 1995 and 1996 and Projected Access 1997

Type of Access	1995	1996	1997
Percent of local dial-up	0%	2%	10%
Percent of toll-free dial-up	0%	2%	5%
Percent of dedicated access	0%	0%	0%
Percent of local dial-up	0%	1%	1%
Percent of toll-free dial-up	0%	1%	5%
Percent of dedicated access	0%	0%	0%
Percent of local dial-up	0%	2%	95%
Percent of toll-free dial-up	0%	2%	5%
Percent of dedicated access	0%	0%	0%

Percentages of Puerto Rico's school districts and the network access they used in spring 1995 and spring 1996 and projections for spring 1997

I Initiatives Promoting Network Use

Puerto Rico has an initiative to integrate Web resources into the commonwealth's curriculum frameworks
Yes

Puerto Rico education agency would consider adopting Web resources as textbooks
Yes

Puerto Rico has a safety-net initiative to provide underserved K-12 populations with Internet connectivity
No

Puerto Rico's education agency currently has a Web site
No

J Information Service Providers in the Public Sector

Sources in Puerto Rico that provide information services on public networks
all that apply marked bold
The commonwealth's legislature
Public utility/public service commission
Puerto Rico's dept. of education
Community freenets
Public libraries
Higher education
Tax authorities

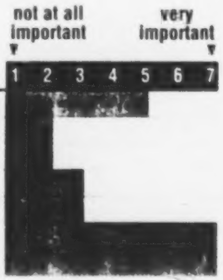
Other sources of public information networks
No

K Telecommunications Training Topics and Their Importance

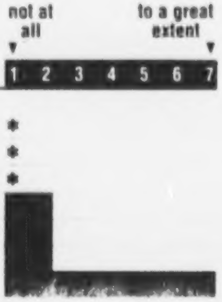
Topics currently addressed in education telecommunications training offered in Puerto Rico
all that apply marked bold
Technical issues
Ethical issues
Liability issues
Education policy
Professional productivity
Curriculum integration
Grant writing

Other topics addressed in training
No

The importance of topics addressed in education telecommunications training offered in Puerto Rico



The extent to which the following sources currently provide training services to assist Puerto Rico with telecommunications implementation



Other sources of training
University of Puerto Rico Resource of Science and Engineering

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IV. Appendices

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State Networking Report Survey Trend Analysis

Background and Objectives

The Southwest Educational Development Laboratory (SEDL) seeks to better understand factors that are associated with variation across states in progress toward the development of educational networking infrastructure in schools and school districts throughout the United States. Toward this end, SEDL conducted a more extensive analysis of the data that were collected for the State Networking Report Survey. This report summarizes the key findings from this analysis.

Research Methods

The State Networking Report Survey questionnaire was developed collaboratively by the Texas Education Network (TENET) and SEDL and was administered by telephone to qualified respondents in state departments of education. A total of 51 interviews were completed with respondents in each of the 50 states and Puerto Rico. The interviews were conducted between April 18 and May 13, 1996, and averaged approximately 25 minutes in length.

The questionnaire consisted of 67 items that addressed the issues listed above as well as demographic/profiling information about each state's educational system (number of students, number of districts, etc.). Data on the distribution of the state's population in rural and urban areas as well as per capita income were added to the dataset for this analysis.

The purpose of this analysis is to identify factors that are related to variation in the status of and progress in the development of telecommunications infrastructure for education; i.e., what factors tend to be related to more or less progress? Given the exploratory nature of this research, and obvious constraints on sample size, traditional tests of statistical significance are not appropriate criteria for deciding whether a relationship is important or noteworthy. The approach adopted for this analysis is to identify patterns and relationships among variables based upon substantive significance (is there a pattern or relationship, and does it appear to be meaningful?) rather than statistical significance.

The exploratory approach of this research leads to the obvious caveat that the conclusions drawn are tentative, based on tendencies and patterns of relationships. The relationships that are discovered and discussed should not be interpreted as statistically correlational or causal.

Status and Progress Variables

Several variables were indicators of the status of and progress toward the development of telecommunications infrastructure. These variables include:

Implementation of Telecommunications Plan

- Current implementation (percent completed)
- Implementation progress (percent completed since last year)

World Wide Web Sites

- Percent of schools with a World Wide Web site

Network Access

- Current local dial-up access (percent of districts)
- Current toll-free dial-up access (percent of districts)
- Current dedicated access (percent of districts)
- Change since last year in local dial-up access (percent increase since last year)
- Change since last year in toll-free dial-up access (percent increase since last year)
- Change since last year in dedicated access (percent increase since last year)

State-Supported and/or State-Subsidized Access and Usage of Networks

- State-supported/-subsidized access to telecommunications networks (percent of K-12 educators and students with access)
- Usage of state-supported/-subsidized access to telecommunications networks (percent of K-12 educators and students using access)

Private Sector Telecommunications Service Providers' Efforts to Facilitate Infrastructure Development

- Whether private sector telecommunications service providers had established programs to encourage infrastructure development (considered as an intermediate dependent variable)

Special Telecommunications Tariffs for Education

- Existence of public utility/public service commission-established special telecommunications tariffs for education (considered as an intermediate dependent variable)

Context Variables

The variables that tended to be associated with telecommunications status and progress include:

Demographic and Economic Factors

- Number of school districts
- Number of K-12 students
- Percent of state population living in urban areas
- Per capita income

Extent and Sources of Collaboration Among Public Sector Organizations

- Overall extent of collaboration
- Extent of collaboration with state legislature
- Extent of collaboration with higher education

Extent and Sources of Funding

- Percent of funding provided by local government
- Percent of funding provided by state government
- Percent of funding provided by federal government
- Percent of funding provided by the private sector
- Percent of funding provided by foundations
- Overall percent of funding provided by government
- Overall percent of funding provided by nongovernmental sources

Private Sector Telecommunications Service Providers' Efforts to Facilitate Infrastructure Development

- Whether private sector telecommunications service providers had established programs to encourage K-12 network infrastructure development (considered as an intermediate dependent variable)

Telecommunications Tariffs for Education

- Existence of public utility/public service commission-established special telecommunications tariffs for education (considered as an intermediate dependent variable)

Training Assistance

- Overall extent of telecommunications training assistance for educators
- Extent of telecommunications training assistance provided by higher education

Research Results

The results are presented by categories of context variables, beginning with demographic and economic factors, and followed by collaboration, funding, private sector efforts to facilitate infrastructure development, telecommunications tariffs, and training assistance. Data were current in spring 1996.

A. Demographic and Economic Factors

States with more school districts tended to have:

- A higher percentage of schools with World Wide Web sites
- Enhanced local dial-up, toll-free dial-up, and dedicated access
    - Higher percentage of districts with toll-free dial-up access
    - Increase in percentage of districts with dedicated access
- Enhanced state-supported/-subsidized network access
    - More K-12 students using access

States with more K-12 students tended to have:

- Enhanced local dial-up, toll-free dial-up, and dedicated access
    - Higher percentage of districts with local dial-up access
    - Higher percentage of districts with toll-free dial-up access
    - Increase in percentage of districts with toll-free dial-up access

States with a greater percentage of the population living in urban areas tended to have:

- Enhanced local dial-up, toll-free dial-up, and dedicated access
    - Higher percentage of districts with local dial-up access
    - Higher percentage of districts with toll-free dial-up access
    - Higher percentage of districts with dedicated access
    - Increase in percentage of districts with local dial-up access
    - Increase in percentage of districts with toll-free dial-up access
    - Increase in percentage of districts with dedicated access
- Enhanced state-supported/-subsidized network access
    - More K-12 educators with access

- Private sector telecommunications service providers establishing programs for infrastructure development

States with higher per capita income tended to have:

- Increase over last year (1995) in implementation of telecommunications plan
- Enhanced local dial-up, toll-free dial-up, and dedicated access
    - Higher percentage of districts with local dial-up access
    - Higher percentage of districts with toll-free dial-up access
    - Higher percentage of districts with dedicated access
    - Increase in percentage of districts with local dial-up access
    - Increase in percentage of districts with toll-free dial-up access
- Enhanced state-supported/-subsidized network access
    - More K-12 educators with access

B. Extent and Sources of Collaboration

States with a greater overall collaboration effort among public sector organizations tended to have:

- Enhanced local dial-up, toll-free dial-up, and dedicated access
    - Higher percentage of districts with toll-free dial-up access
    - Increase in percentage of districts with toll-free dial-up access
    - Increase in percentage of districts with dedicated access
- Enhanced state-supported/-subsidized network access
    - More K-12 educators with access
    - More K-12 educators using access
    - More K-12 students with access
- Private sector telecommunications service providers establishing programs for infrastructure development

States with a greater legislative collaboration effort tended to have:

- Higher level of implementation of telecommunications plan (slight)
- Increase over last year (1995) in implementation of telecommunications plan

- Enhanced local dial-up, toll-free dial-up, and dedicated access
    - Higher percentage of districts with toll-free dial-up access
    - Higher percentage of districts with dedicated access
    - Increase in percentage of districts with toll-free dial-up access
    - Increase in percentage of districts with dedicated access
- Enhanced state-supported/-subsidized network access
    - More K-12 educators with access
    - More K-12 educators using access
    - More K-12 students with access

States with a greater higher education collaboration effort tended to have:

- Enhanced local dial-up, toll-free dial-up, and dedicated access
    - Higher percentage of districts with toll-free dial-up access
- Enhanced state-supported/-subsidized network access
    - More K-12 educators with access
    - More K-12 educators using access
    - More K-12 students using access

C. Extent and Sources of Funding

States with greater funding from local government tended to have:

- Enhanced local dial-up, toll-free dial-up, and dedicated access
    - Higher percentage of districts with local dial-up access
    - Increase in percentage of districts with local dial-up access
- Enhanced state-supported/-subsidized network access
    - More K-12 educators using access
    - More K-12 students with access

States with greater funding from state government tended to have:

- Higher level of implementation of telecommunications plan (slight)
- Enhanced local dial-up, toll-free dial-up, and dedicated access
    - Higher percentage of districts with toll-free dial-up access
    - Higher percentage of districts with dedicated access
- Enhanced state-supported/-subsidized network access
    - More K-12 educators with access
    - More K-12 educators using access
    - More K-12 students with access
    - More K-12 students using access

States with greater funding from the federal government tended to have:

- Enhanced state supported/subsidized access
    - More K-12 educators with access
- Private sector telecommunications service providers establishing programs for infrastructure development

States with greater funding from the private sector tended to have:

- A higher percentage of schools with a Web site
- Enhanced local dial-up, toll-free dial-up, and dedicated access
    - Higher percentage of districts with toll-free dial-up access
    - Increase in percentage of districts with local dial-up access
    - Increase in percentage of districts with toll-free dial-up access
- Enhanced state-supported/-subsidized network access
    - More K-12 educators with access
    - More K-12 educators using access
    - More K-12 students using access
- Private sector telecommunications service providers establishing programs for infrastructure development

States with greater funding from foundations tended to have:

- Enhanced local dial-up, toll-free dial-up, and dedicated access
    - Higher percentage of districts with toll-free dial-up access
- Private sector telecommunications service providers establishing programs for infrastructure development

States with greater funding from government tended to have:

- Higher level of implementation of telecommunications plan

- Enhanced local dial-up, toll-free dial-up, and dedicated access
    - Higher percentage of districts with local dial-up access
    - Higher percentage of districts with dedicated access
    - Increase in percentage of districts with dedicated access
- Enhanced state-supported/-subsidized network access
    - More K-12 educators using access
    - More K-12 students with access
    - More K-12 students using access

D. Private Sector Efforts to Facilitate Infrastructure Development

States that had private sector telecommunications service providers establishing programs to encourage infrastructure development tended to have:

- Increase over last year (1995) in implementation of telecommunications plan
- Enhanced local dial-up, toll-free dial-up, and dedicated access
    - Higher percentage of districts with toll-free dial-up access
    - Increase in percentage of districts with local dial-up access
    - Increase in percentage of districts with toll-free dial-up access
    - Increase in percentage of districts with dedicated access
- Enhanced state-supported/-subsidized network access
    - More K-12 educators with access

E. Telecommunication Tariffs for Education

States that had public utility/public service commission-established special telecommunications tariffs for education tended to have:

- Enhanced local dial-up, toll-free dial-up, and dedicated access
    - Higher percentage of districts with local dial-up access
    - Higher percentage of districts with toll-free dial-up access
    - Higher percentage of districts with dedicated access
    - Increase in percentage of districts with local dial-up access
    - Increase in percentage of districts with toll-free dial-up access

- Enhanced state-supported/-subsidized network access
    - More K-12 educators with access
    - More K-12 students using access

F. Training Assistance

States that had greater overall training assistance tended to have:

- Enhanced local dial-up, toll-free dial-up, and dedicated access
    - Higher percentage of districts with toll-free dial-up access
    - Increase in percentage of districts with toll-free dial-up access
    - Increase in percentage of districts with dedicated access
- Enhanced state-supported/-subsidized network access
    - More K-12 educators with access
    - More K-12 students with access
    - More K-12 students using access
- Private sector telecommunications service providers establishing programs for infrastructure development

States that had greater training assistance provided by higher education tended to have:

- Enhanced local dial-up, toll-free dial-up, and dedicated access
    - Increase in percentage of districts with toll-free dial-up access
- Enhanced state-supported/-subsidized network access
    - More K-12 educators with access

William R. Kelly
Department of Sociology
University of Texas at Austin
February 1997

APPENDIX B

Network Connectivity in Urban and Rural K-12 Schools and School Districts

Researchers at the Texas Education Network (TENET) attempted to identify if there was a disparity in the quality of the network connectivity used by urban and rural schools and school districts. The state-level respondents from the State Networking Report Survey were interviewed between August 1, 1996 and September 31, 1996. Each of these respondents was asked to identify a "typical" urban and rural school district in their state that was connected to the Internet. Representatives of these districts were contacted for interviews, during which they described the bandwidth of the circuit that connected them to their school district's Internet service provider (ISP) and the dial-up access available to educators.

Many district respondents said their levels of connectivity and costs would change in the near future. For consistency's sake, however, each district respondent was asked to describe the situation in his or her school or district at the time of the interview.

Several issues regarding the consistency of these data arose. A significant issue was the fact that some districts had one circuit connected to an ISP from a central location, often a district office or school, and then connected their other schools from that central location. Other districts had no single point of connection but had staff from each school set up direct connections to an ISP.

These issues were resolved in the following manner. Bandwidth was measured from an ISP either to the one central districtwide point of connection in the school district or to several individual school points. If there was more than one connection point within a district, then the single highest level of bandwidth between an ISP and a school was recorded.

Conclusions

Data from this study strongly suggest that the quality of rural schools' Internet connectivity was significantly less than that of their urban counterparts. While urban school districts were not typically paying more for their Internet access and their circuit than rural districts, they were receiving a higher quality of Internet connectivity than their rural counterparts. On a quantified basis, 71 percent of urban districts had a bandwidth level of 1.544Mb or greater—a bandwidth level known as T1—while correspondingly only 27 percent of rural districts attained that level. Additionally, of all the districts receiving network services at low levels of connectivity (i.e., modems at 28.8Kb or less), 86 percent were rural districts.

While this disparity can be partially accounted for by the generally larger student populations in urban districts, it is doubtful that the disparity can fully be attributed to class size. TENET's reasoning assumes that the ratio of computers to students stayed roughly the same across urban and rural school districts.

Research Staff
Texas Education Network
Charles A. Dana Center
University of Texas at Austin
March 1997

Data from TENET Bandwidth Study

State	District Type	District or School Name	Type of Line to ISP	Dial-Up Access Available to Educators
Alabama	Urban	Mountainbrook High School	T1 fract.	No dial-up access provided
	Rural	Etowah High School	28.8Kb	No dial-up access provided
Alaska	Urban	Juneau School District	2Mb wireless	No dial-up access provided
	Rural	Bethel	9600 baud	No dial-up access provided
Arizona	Urban	Catalina Foothills	56Kb	No dial-up access provided
	Rural	Cottonwood Oak Creek	56Kb	Limited dial-up access provided at no charge
Arkansas	Urban	Texarkana School District	T1	District pays for 9 phone lines to dial into district server
	Rural	Prescott School District	56Kb	District pays for 6 phone lines to dial into district server
California	Urban	Escondido Elementary School	56Kb frame	County provides unlimited Internet local dial-up access
	Rural	Humboldt	56Kb frame	No dial-up access provided
Colorado	Urban	Boulder Valley	T1	45 dial-up lines for teachers/staff
	Rural	Wiggins	T1	2 dial-up lines, teachers/staff use PC anywhere
Connecticut	Urban		56Kb	No dial-up access provided
	Rural		56Kb	No dial-up access provided
Delaware	Urban		T1	Each county has dial-up access for teachers from home
	Rural		T1	Each county has dial-up access for teachers from home
Florida	Urban	Palm Beach School District	T1	Dial-up access through FIRN, state's K-12 network
	Rural	Brevard School District	T1	Dial-up access through both FIRN and some schools
Georgia	Urban	Gwinnett School District	T1	No dial-up access provided
	Rural	Houston County School District	28.8Kb	No dial-up access provided
Hawaii	Urban		10Mb	Very limited toll-free dial-up access
	Rural		56Kb	Very limited toll-free dial-up access
Idaho	Urban	Boise School District	T1	No dial-up access provided, discounts for teachers from district's ISP
	Rural	Soda Springs School District	56Kb	8 dial-up lines for teachers/staff
Illinois	Urban		T1	State has 64 toll-free lines for teachers to dial-in from home but is getting rid of them
	Rural		56Kb	State has 64 toll-free lines for teachers to dial-in from home but is getting rid of them
Indiana	Urban		T1	Dial-up access provided via special arrangements with community networks
	Rural		56Kb	Dial-up access provided via special arrangements with community networks
Iowa	Urban	College Community School District	56Kb	School district provides 16 dial-up lines at no charge to teachers
	Rural	HLV School District	T1	No dial-up access provided
Kansas	Urban	Olathe School District	T1	No dial-up access provided
	Rural	Leavenworth School District	28.8Kb	No dial-up access provided
Kentucky	Urban		T1	No dial-up access provided
	Rural		T1	No dial-up access provided
Louisiana	Urban	Jefferson Parish School District	T1	No dial-up access provided
	Rural	Vermilion Parish School District	T1	No dial-up access provided
Maine	Urban	Gorham Town Schools	56Kb	No dial-up access provided
	Rural	Gould Academy (Bethel)	T1	16 dial-up lines at the academy
Maryland	Urban	Logan Elementary School	T1	No dial-up access provided
	Rural	Centreville School Board (District)	T1 Fract.	No dial-up access provided
Massachusetts	Urban	Summerville School District	T1	No dial-up access provided
	Rural	South Berkshire School District	56Kb	No dial-up access provided
Michigan	Urban	Detroit School District	T1	No dial-up access provided
	Rural	Northern part of state	56Kb	8 dial-up lines with unlimited use in 2-hour blocks
Minnesota	Urban	Minneapolis School District	T1	Staff can purchase dial-up accounts from district
	Rural	Blue Earth	56Kb	No dial-up access provided
Mississippi	Urban	Brandon Middle School	T1	No dial-up access provided
	Rural	Aberdeen High School	56Kb	14 dial-up lines provided for teachers/staff at no charge
Missouri	Urban		56Kb	No dial-up access provided
	Rural		56Kb	No dial-up access provided

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State	District Type	District or School Name	Type of Line to ISP	Dial-Up Access Available to Educators
Montana	Urban	Bozeman	256Kb	No dial-up access provided
	Rural	L. A. Muldown Elementary School	28.8Kb	No dial-up access provided, but ISP has discounts for 5 or more teachers
Nebraska	Urban	Lincoln	T1	30 lines in district's modem pool for teachers/staff at no charge
	Rural	Valentine Rural High School	T1	1 line for teachers to dial into school
Nevada	Urban	Advanced Technology Academy	T1	No dial-up access provided
	Rural	Elko School District	28.8Kb	No dial-up access provided
New Hampshire	Urban		56Kb	No dial-up access provided
	Rural		56Kb	No dial-up access provided
New Jersey	Urban	Paterson School District	T1	30 dial-up lines at no cost to teachers/staff
	Rural	Hunterdon Central High School	T1	36 teachers can dial-in at any one time
New Mexico	Urban	Albuquerque School District	T1	30 teachers can dial-in at any one time—schools also use these lines
	Rural	Cuba School District	56Kb	Dial-up lines for 4 teachers/staff
New York	Urban	New York City, District 10	28.8Kb	No dial-up access provided
	Rural	Cobleskill School District	T1	No dial-up access provided
North Carolina	Urban	Forsythe County School District	T1	Dial-up access provided through Bowman Gray Medical School at no charge
	Rural	Rockingham	28.8Kb	No dial-up access provided
North Dakota	Urban	Fargo School District	T1	No dial-up access provided
	Rural	Hillsboro School District	56Kb	8 lines of dial-up access
Ohio	Urban		T1	No dial-up access provided
	Rural		56Kb	No dial-up access provided
Oklahoma	Urban	Norman	T1	Individual SLIP and PPP accounts from ONENET state network
	Rural	Frontier	56Kb	Individual SLIP and PPP accounts from ONENET state network
Oregon	Urban		T1	EdNet (state K-12 network) provides low-cost dial-up access across the state
	Rural		T1	EdNet provides low-cost dial-up access across the state
Pennsylvania	Urban	Philadelphia School District	SMDS-4Mb	More than 140 lines of dial-up access for teachers/staff at no charge
	Rural	Shikellamy School District	28.8Kb	20 dial-up lines available
Rhode Island	Urban	Newport School District	384Kb	Unlimited dial-up access for all teachers and appropriate staff
	Rural	North Kingston School District	28.8Kb	Unlimited dial-up access for all teachers and appropriate staff
South Carolina	Urban	Lexington 5	T1	No dial-up access provided
	Rural	Clarendon 1	28.8Kb	No dial-up access provided
South Dakota	Urban	Sioux Falls	T1	No dial-up access provided
	Rural	Belle Fourche	28.8Kb	No dial-up access provided
Tennessee	Urban	Kingsport School District	T1	9 lines for dial-up
	Rural	Clay County School District	T1	6 lines for dial-up
Texas	Urban	Houston School District	T1	No dial-up access at district level but dial-up access available from state's K-12 network
	Rural	Grove Middle School	T1	2 dial-up lines at no charge for teachers from TENET, state's K-12 network
Utah	Urban		T1	Dial-up access across state, free of charge now, will be $10/month
	Rural		T1	Dial-up access across state, free of charge now, will be $10/month
Vermont	Urban	South Burlington	56Kb	No dial-up access provided
	Rural	Montpelier	56Kb	No dial-up access provided
Virginia	Urban	Chesterfield School District	T1	No dial-up access provided
	Rural	Albemarle School District	500Kb	No dial-up access provided
Washington	Urban	Kent School District	T1	No dial-up access provided
	Rural	Onalaska School District	56Kb	20 dial-up lines for teachers at no charge
West Virginia	Urban		56Kb	Teachers select an ISP, Bell Atlantic pays toll charges
	Rural		56Kb	Teachers select an ISP, Bell Atlantic pays toll charges
Wisconsin	Urban	West Alice School District	128Kb	No dial-up access provided
	Rural	Marshfield School District	28.8Kb	No dial-up access provided
Wyoming	Urban	Natrona County School District	56kb	No dial-up access provided
	Rural	Park County School District	28.8Kb	No dial-up access provided
Puerto Rico	Urban		28.8Kb	Toll-free dial-up access for all of Puerto Rico
	Rural		28.8Kb	Toll-free dial-up access for all of Puerto Rico

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State Officials Responsible for Setting Up Public K-12 State Networks

Listings marked with an asterisk were updated after the original data collection in April–May 1996.

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Arkansas

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California

No individual person is charged with setting up K-12 network in this state. Respondent reported, *"Technology Task Force for the statewide California Department of Education is set up temporarily to do strategy, and then will disband."*

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Connecticut

No individual person is charged with setting up K-12 network in this state. Respondent reported, *"No education telecommunications network in Connecticut."*

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New Hampshire
No individual person is charged with setting up K-12 network in this state. Respondent reported, "*[There is] none. The state has no plans to construct a network. NHTIE, a state and business partnership, is providing assistance to schools wishing to connect to the Internet. Training, software, and some hardware has been provided.*"

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Virginia

No individual person is charged with setting up K-12 network in this state. Respondent reported, *"Individual school divisions in Virginia each have a person responsible for this—no one in the Virginia Department of Education."*

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Secretary
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Contacts in State Public Utility/Public Service Commissions for K-12 Education

In instances where respondents did not provide contact information for their state public utility/public service commission or its equivalent, contact information was taken from *The State Yellow Book*, Winter 1997 edition. These entries are marked with an asterisk. All other entries are based upon information provided by respondents.

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Arizona Corporation Commission
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Arkansas

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California*

California Public Utilities Commission
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Colorado*

Colorado Public Utilities Commission
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Connecticut*

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Delaware*

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Florida*

Florida Public Service Commission
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Tallahassee, Florida 32399-0850
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URL http://www.state.fl.us/psc/psc_toc.htm

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Illinois*

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APPENDIX D

Questionnaire for the State Networking Report Survey

Tammadge Marketing of Austin, Texas, conducted structured interviews by telephone using the following survey between April 18 and May 12, 1996. Fifty-one respondents, representing each of the 50 states and Puerto Rico, were interviewed. Every prompt allowed "Don't know" or "Not applicable" responses as well as the options listed.

As you know, we are conducting an important survey to assess telecommunications for education in [STATE], and I would like to take a few minutes of your time to ask you some questions that will permit us to assess the status of education focused telecommunications.

I would like to begin by asking you some questions about telecommunications for education in [STATE].

1. Does [STATE] currently have a long-range telecommunications plan for education?
_____ **a.** Yes
_____ **b.** No

1a. Is [STATE] in the process of developing a long-range telecommunications plan for education?
_____ **a.** Yes
_____ **b.** No

2. How much of this plan has been implemented? Would you say that implementation is currently...
_____ **a.** 75% to 100% complete
_____ **b.** 50% to 74% complete
_____ **c.** 25% to 49% complete
_____ **d.** Less than 25% complete

3. How far along was implementation of this plan one year ago? Would you say that implementation at this time last year was...
_____ **a.** 75% to 100% complete
_____ **b.** 50% to 74% complete
_____ **c.** 25% to 49% complete
_____ **d.** Less than 25% complete

4. Is this plan part of a larger, statewide plan for telecommunications?
_____ **a.** Yes
_____ **b.** No

5. Does the [STATE] department of education currently have a World Wide Web site?
_____ **a.** Yes
_____ **b.** No
What is the URL or Internet address?

6. Does the [STATE] department of education have an initiative to correlate Web-based resources to the state curriculum frameworks?
_____ **a.** Yes
_____ **b.** No

7. Would the [STATE] department of education consider adopting Web-based resources as textbooks?
_____ **a.** Yes
_____ **b.** No

I would now like to ask you some questions about network service providers and funding for network services.

8. I am going to read a list of agencies and I would like to know which of these agencies provide information services on public networks in [STATE]. Indicate all that apply.
_____ **a.** State legislature
_____ **b.** Public utility or public service commission
_____ **c.** State department of education
_____ **d.** Community freenets
_____ **e.** Public libraries
_____ **f.** Higher education
_____ **g.** Tax authorities
Are there any others?
Please name them.

9. I am going to read the same list of agencies and I would like to know the extent to which they collaborate with the [STATE] department of education in the development of networking infrastructure. Using a scale from 1 to 7, where 1 means "not at all" and 7 means "to a great extent," please indicate the extent to which each collaborates with your department of education in the development of networking infrastructure. Indicate all that apply.

a. State legislature
1 2 3 4 5 6 7
b. Public utility or public service commission
1 2 3 4 5 6 7
c. State department of education
1 2 3 4 5 6 7
d. Community freenets
1 2 3 4 5 6 7
e. Public libraries
1 2 3 4 5 6 7
f. Higher education
1 2 3 4 5 6 7
g. Tax authorities
1 2 3 4 5 6 7

10. Which of the following funding sources are currently available for the development of telecommunications infrastructure for education in [STATE]? Indicate all that apply.

a. Local government
b. State government
c. Federal government
d. Private sector partnerships
e. Private or corporate foundations

Are there any others? Please specify.

10a. Approximately what percent of the infrastructure of [STATE'S] educational telecommunications networking system has been funded by…

_____% Local government
if percentage provided
Do you expect this percentage to increase, decrease, or stay about the same next year?

_____% State government
if percentage provided
Do you expect this percentage to increase, decrease, or stay about the same next year?

_____% Federal government
if percentage provided
Do you expect this percentage to increase, decrease, or stay about the same next year?

_____% Private sector partnerships
if percentage provided
Do you expect this percentage to increase, decrease, or stay about the same next year?

_____% Private or corporate foundations
if percentage provided
Do you expect this percentage to increase, decrease, or stay about the same next year?

11. Using a scale of 1 to 7, where 1 means "not at all important" and 7 means "very important," how important do you think each of the following funding sources is for the future development of networking infrastructure in [STATE]?

a. Local government
1 2 3 4 5 6 7
b. State government
1 2 3 4 5 6 7
c. Federal government
1 2 3 4 5 6 7
d. Private sector partnerships
1 2 3 4 5 6 7
e. Private or corporate foundations
1 2 3 4 5 6 7

12. What do you believe will be the impact of the *Telecommunications Act of 1996* on telecommunications efforts in [STATE]? Will it have a positive impact, a negative impact, or no effect?

a. Positive impact
b. Negative impact
c. No effect

13. Have any major telecommunications service providers established a program in [STATE] to encourage infrastructure building?

_____ **a.** Yes
_____ **b.** No

Which telecommunications service provider(s) has (have) established this program? Please name them.

Who provided the incentives for establishing this program? Please name them.

14. How significant do you think such a program is for your networking efforts in K-12 education? Would you say it is very significant, somewhat significant, not too significant, or not at all significant for your networking efforts in K-12 education?

a. Very significant
b. Somewhat significant
c. Not too significant
d. Not at all significant

15. What do you believe is the best way to establish relationships with telecommunications service providers for developing telecommunications networking infrastructure?

16. Has the [STATE] public utility commission or public service commission established special telecommunications tariffs for education?

_____ **a.** Yes
_____ **b.** No

Is the law or ruling providing such tariffs available electronically?

_____ **a.** Yes
_____ **b.** No

What is the URL or Internet address?

17. How significant do you think such tariffs are for your networking efforts in K-12 education? Would you say they are very significant, somewhat significant, not too significant, or not at all significant for your networking efforts in K-12 education?

a. Very significant
b. Somewhat significant
c. Not too significant
d. Not at all significant

18. Using a scale from 1 to 7, where 1 means "not at all" and 7 means "to a great extent," please indicate the extent to which the following sources currently provide training services to assist [STATE] with matters related to telecommunications implementation.

a. Regional education service centers
1 2 3 4 5 6 7

b. District administrative staff
1 2 3 4 5 6 7

c. Distance learning providers
1 2 3 4 5 6 7

d. Consultants
1 2 3 4 5 6 7

e. Vendors
1 2 3 4 5 6 7

f. Professional conferences
1 2 3 4 5 6 7

g. Higher education
1 2 3 4 5 6 7

Are there any others? Please name them.

18a. Would you say that these sources of training are more available, less available, or available about the same compared to last year for providing services to assist [STATE] with telecommunications implementation? Indicate more, less, the same, or don't know.

_____ **a.** Regional service centers
_____ **b.** District administrative staff
_____ **c.** Distance learning providers
_____ **d.** Consultants
_____ **e.** Vendors
_____ **f.** Professional conferences
_____ **g.** Higher education

19. Using a scale from 1 to 7, where 1 means "not at all important" and 7 means "very important," please indicate how important you think it is that each of the following topics is addressed in telecommunications training for education offered in [STATE].

a. Technical issues
1 2 3 4 5 6 7

b. Ethical issues
1 2 3 4 5 6 7

c. Liability issues
1 2 3 4 5 6 7

d. Educational policy
1 2 3 4 5 6 7

e. Professional productivity
1 2 3 4 5 6 7

f. Curriculum integration
1 2 3 4 5 6 7

g. Grant writing
1 2 3 4 5 6 7

20. Which of the following topics are currently addressed in educational telecommunications training offered in [STATE]? Indicate all that apply.

a. Technical issues
b. Ethical issues
c. Liability issues
d. Educational policy
e. Professional productivity
f. Curriculum integration
g. Grant writing

Are there any others? Please specify.

I would now like to ask you some questions about public education and the role of telecommunications in public education in [STATE].

21. How many school districts are in [STATE]?

22. How many public school buildings are in [STATE]? By this I mean buildings that are central or primary to educational instruction.

23. How many public K-12 teachers are currently employed in [STATE]? This includes full-time and part-time teachers.

24. How many public K-12 students are currently enrolled in [STATE]?

25. Approximately how many students are enrolled in the school district in [STATE] with the largest student population?

26. Approximately how many students are enrolled in the school district in [STATE] with the smallest student population?

27. How many school districts in [STATE] have fewer than 1,000 students?

28. Does the [STATE] educational telecommunications network provide dial-up access to reach the network?

_____ **a.** Yes
_____ **b.** No

28a. How is dial-up access used? Indicate all that apply.

_____ **a.** Administrative functions at the district level
_____ **b.** Administrative functions at the campus level
_____ **c.** Classroom instruction
_____ **d.** Student resource

29. Does the [STATE] educational telecommunications network provide dedicated access to reach the network?

_____ **a.** Yes
_____ **b.** No

29a. How is dedicated access used? Indicate all that apply.

_____ **a.** Administrative functions at the district level
_____ **b.** Administrative functions at the campus level
_____ **c.** Classroom instruction
_____ **d.** Student resource

30. Are current efforts in [STATE] directed primarily toward providing dial-up access, dedicated access, or both?

_____ **a.** Dial-up access
_____ **b.** Dedicated access
_____ **c.** Both

31. Is [STATE] considering implementing NetDay activities to wire school buildings? NetDay is a national volunteer initiative to wire school buildings for telecommunications.

_____ **a.** Yes
_____ **b.** No

32. What percent of the schools in [STATE] currently have a World Wide Web site?

_____ %

Now I would like to ask you some questions about the status of telecommunications in the school districts in [STATE].

33. Approximately what percent of the school districts in [STATE] currently have local dial-up network access?
_____ %

34. Approximately what percent of the school districts in [STATE] had local dial-up network access one year ago?
_____ %

35. Approximately what percent of the school districts in [STATE] will have local dial-up network access one year from now?
_____ %

36. Approximately what percent of the school districts in [STATE] currently have toll-free dial-up network access?
_____ %

37. Approximately what percent of the school districts in [STATE] had toll-free dial-up network access one year ago?
_____ %

38. Approximately what percent of the school districts in [STATE] will have toll-free dial-up network access one year from now?
_____ %

39. Approximately what percent of the school districts in [STATE] currently have dedicated network access?
_____ %

40. Approximately what percent of the school districts in [STATE] had dedicated network access one year ago?
_____ %

41. Approximately what percent of the school districts in [STATE] will have dedicated network access one year from now?
_____ %

Now I would like for you to focus on school districts in [STATE] that are located in urban areas.

42. Approximately what percent of the school districts in [STATE] that are located in urban areas currently have local dial-up network access?
_____ %

43. Approximately what percent of the school districts in [STATE] that are located in urban areas had local dial-up network access one year ago?
_____ %

44. Approximately what percent of the school districts in [STATE] that are located in urban areas will have local dial-up network access one year from now?
_____ %

45. Approximately what percent of the school districts in [STATE] that are located in urban areas currently have toll-free dial-up network access?
_____ %

46. Approximately what percent of the school districts in [STATE] that are located in urban areas had toll-free dial-up network access one year ago?
_____ %

47. Approximately what percent of the school districts in [STATE] that are located in urban areas will have toll-free dial-up network access one year from now?
_____ %

48. Approximately what percent of the school districts in [STATE] that are located in urban areas currently have dedicated network access?
_____ %

49. Approximately what percent of the school districts in [STATE] that are located in urban areas had dedicated network access one year ago?
_____ %

50. Approximately what percent of the school districts in [STATE] that are located in urban areas will have dedicated network access one year from now?
_____ %

Finally, I would like to ask you some questions about school districts located in rural areas.

51. Approximately what percent of the school districts in [STATE] that are located in rural areas currently have local dial-up network access?
_____ %

52. Approximately what percent of the school districts in [STATE] that are located in rural areas had local dial-up network access one year ago?
_____ %

53. Approximately what percent of the school districts in [STATE] that are located in rural areas will have local dial-up network access one year from now?
_____ %

54. Approximately what percent of the school districts in [STATE] that are located in rural areas currently have toll-free dial-up network access?
_____ %

55. Approximately what percent of the school districts in [STATE] that are located in rural areas had toll-free dial-up network access one year ago?
_____ %

56. Approximately what percent of the school districts in [STATE] that are located in rural areas will have toll-free dial-up network access one year from now?
_____ %

57. Approximately what percent of the school districts in [STATE] that are located in rural areas currently have dedicated network access?
_____ %

58. Approximately what percent of the school districts in [STATE] that are located in rural areas had dedicated network access one year ago?
_____ %

59. Approximately what percent of the school districts in [STATE] that are located in rural areas will have dedicated network access one year from now?

_____ %

I have just a few questions remaining.

60. Approximately what percent of K-12 educators currently have state-provided or state-subsidized access to telecommunications networks?

_____ %

61. Approximately what percent of K-12 educators utilize these services?

_____ %

62. Approximately what percent of K-12 students currently have state-provided or state-subsidized access to telecommunications networks?

_____ %

63. Approximately what percent of K-12 students utilize these services?

_____ %

64. Is there an initiative in [STATE] to provide a safety net for underserved K-12 populations who are not able to obtain their own Internet connectivity?

_____ **a.** Yes
_____ **b.** No

I would like to finish by asking you some questions about key individuals and service providers in [STATE].

65. Who is the person responsible for setting up or directing the telecommunications network for K-12 schools in the [STATE] department of education? Could you please tell me the…

Contact name: ______________________

Organization name: ______________________

Mailing address: ______________________

E-mail address: ______________________

Telephone number: ______________________

Fax number: ______________________

66. Who is the contact person at [STATE'S] public utility commission or public service commission who assists school districts with telecommunications regulations, questions, and issues?

Contact name: ______________________

Organization name: ______________________

Mailing address: ______________________

E-mail address: ______________________

Telephone number: ______________________

Fax number: ______________________

67. Finally, could you please tell me…

Your name: ______________________

The name of your organization: ______________________

Your mailing address: ______________________

Your e-mail address: ______________________

Your telephone number: ______________________

Your fax number: ______________________

Thank you for your time.

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